

REPORT
ON
THE ADMINISTRATION
OF THE

Inland Customs Department

OFFICIAL YEAR

1869-70.

APPENDICES A TO K.



CALCUTTA :
OFFICE OF SUPERINTENDENT OF GOVERNMENT PRINTING.
1871.

Appendix A.

The Kohat Mines.

The Kohat mines are situated in a belt of low ranges of hills that run along the southern portion of the Kohat District, stretching from near Bunnoo or Duleepgurh eastwards to the Indus.

2. At present only five mines are here worked; these, enumerating them according to geographical position and commencing from the east, are Jutla, Malgeen, Nurree, Kurruck, and Bahadur-Kheyl. Nine other mines, Nundrukka, Munzullie, Burburra, Speena, Kurrur, Gooroozai, Soortung, Dhund, and Shah, have been worked at one time or another, but are now closed.

3. As far as I can understand, purchasers make their own arrangements with the miners for excavating the salt, and then pay to Government a duty of 4 annas a maund (13s. 7d. per ton) at Jutla, Malgeen, and Nurree, 3 annas a maund (10s. 2½d. per ton) at Kurruck, and 2 annas (or 6s. 9½d. per ton) at Bahadur-Kheyl on all they remove. I have not visited these mines, but from all that I can learn, the excavations are carried on without any system and in a most wasteful manner. They have no educated European supervisor, and are supposed to be looked after by the Deputy Commissioner of Kohat, who doubtless does all that is possible, but who with fifty other more important matters to attend to, and one of the most troublesome districts in the country to manage, cannot, of course, see that justice is done them.

4. During the year under review (1869-70) the five mines turned out 496,216 maunds (18,229 tons), being (*vide* Statement 1) a quantity nearly one-fourth in excess of the yield of the previous year, and still more in excess of that of any other antecedent year. Malgeen and Jutla are the two most important mines, and to these the Afreedies principally trade, while Bahadur-Kheyl, the next most important, is chiefly frequented by the Wazeerees.

5. The gross realizations for 1869-70 (*vide* Statement 1) were Rs. 1,07,023, a sum as much in advance of the realizations of previous years as the out-turn of the former was in excess of that of any of the latter.

6. The charges amounted to Rs. 87,876. These may be divided into three heads; first, allowances (it is presumed in compensation for proprietary rights, or as a sort of blackmail) to certain *Mullicks*, or petty chiefs or land-owners, and contingencies, Rs. 11,436 (*vide* Statement 1); second, fixed establishment at the mines, open and closed, Rs. 17,556 (*vide* Statement 2); and third, the cost of the Indus Valley Line (maintained solely to prevent this cheap salt reflexing into our Cis-Indus provinces and displacing there our full dutied salt), Rs. 58,884, exclusive of share of cost of supervision by Collector of Shahpore, &c.

7. The net revenue for the past year, the first in which the mines have ever even paid their own expenses, amounts to Rs. 20,147, or in round numbers about Rs. 4 per 100 maunds, against Rs. 3 per *maund* for the salt sold at the Cis-Indus mines!

KOHAT MINES.

Situation.

Number of mines.

Management of mines and sale of produce.

Out-turn.

Gross realizations.

Charges.

Net revenue.

Up to the year under review these mines have yearly been a source of loss to us.

The continuance of these mines justified on political grounds,

which, however, are only doubtfully sound.

These grounds examined. The mines a source of political strength.

This ground untenable; on the contrary, they have, owing to our mismanagement, been a source of weakness.

8. Up to the beginning of the year under review these mines have been a source of yearly loss to us. During the last 20 years we have not only presented some 200,000 tons of beautiful salt to hordes of rustians, free, gratis, for nothing (so far as the imperial exchequer is concerned), but we have further expended some £5,000 out of our own pockets in this kindly endeavour to promote their comfort.

9. The continuance of such a system, whereby we have not only sacrificed revenue that might have been there realized, but actually expended revenue realized elsewhere, merely to enable us to supply cheap salt to Wazerees, Afridis, and the like, who would instantly rob and murder any inoffensive British merchant or traveller who ventured to set foot within their territories, has been justified on political grounds. It has been urged first, that the possession of these mines is a source of great political strength, and second, that to raise the price at the mines would entail a little frontier war.

10. These are two axioms of the old Punjab frontier policy, but they are by no means now universally admitted by even frontier officers. There are some who consider that our timidity in dealing with this and similar questions has led these mountain savages (who at one time certainly feared us) to despise us more or less, and whether this be the case or not, every frontier officer will admit that during the last 20 years their respect for our authority has year by year decreased.

11. Let us, however, examine these grounds! The possession of these mines a source of political strength—with all due deference to the gallant officers who emanated this dogma. I must venture to question its truth; what kind of political strength can it be called which does not enable us to sell our own goods, I will not say at what prices we like, but even at *cost* price?—so far from being a source of political strength, it seems to me that our working these mines is an unmistakable evidence of political weakness.

12. But it may be argued that the political strength involved in our possession of these mines consists in our power to close them should the tribes misbehave themselves. But if merely raising the duty will provoke a little frontier war, *a fortiori*, closing the mines entirely would provoke a great one; even, therefore, under this interpretation, the so-called political strength with which the possession of these mines endows us, is merely a power to provoke when we choose a great frontier war, to avoid which very contingency on a small scale, the very same politicians tell us we must continue to sell our salt and work our mines at a loss. As a matter of fact, I submit that so far from having been any source of strength, these mines, owing to misconception in the mode of dealing with them, have been the cause of loss of prestige, and hence a source of political weakness. The tribes have learnt to believe that we *dare* not demand from them a fair price for our own salt. Once in an injudicious manner the duty was suddenly raised to Rs. 2 per maund. There was no frontier war, but trade ceased and the frontier became excited; no one doubts that this sudden and enormous increase was unwise; it is impossible in fact to conceive anything more opposed to good policy and common sense, but it is doubtful whether the course pursued to retrieve this blunder was not almost more unwise; either the enhancement, however injudicious, should have been adhered to, and this, considering the people and the place, would perhaps have been in the long run the least

damaging course, or it should have been declared a mistake and struck off then and there. But instead of this, intermediate reductions were tried, and when the tribes still held out, we ultimately, after several months, come down to our original prices. Most assuredly these mines have hitherto been no source of political strength to us, in the true sense of the phrase; it is patent that they might have been so, that they may now become this, but that they *have* never been so, it seems to me, is equally clear.

13. Next it is asserted that to enhance the duty (*i. e.*, the price at which we sell our own goods) would provoke a frontier war. In the first place, I traverse this assertion, and believe with some at least of the frontier officers of the division that a small gradual increase would provoke no war, although it might possibly for a time excite some discontent and check the trade. But even granting that this assertion *was* well founded, it would not form, under all the circumstances of the case, a wholly conclusive argument against the measure. If the arrogance of these mountain robbers has risen to such a pitch; if their contempt for our power has so developed that they are ready to fight us merely because we wish so to price the articles they desire to buy from us that we may be no losers, it seems to me that the sooner we allow them to do so the better and wiser it will be. If in the time of our strength, menaced by no traitors at home and no enemies abroad, they are ready to break the peace and make raids into our territories solely because we alter slightly the prices at which we offer for sale our own property, how much more ready will they be to do all this in any hour of temporary weakness, when the stake for which they strike is not the saving of a few rupees, but the plunder of rich districts! Surely it would be better to settle with them now when we have no one else on our hands, than to have this to do when other and more dangerous foes are at our doors. If their temper is now so unbridled that they venture for such a cause to break with us, it is time we taught them that arrangements within our own territories are not dependent on their good will and pleasure, and that while we interfere in no way within their limits, we have no idea of allowing them to dictate to us within ours.

14. But it appears to me, and in this I believe that both the Deputy Commissioner of the District, Lieutenant Cavagnari, and the Commissioner of the Division, Colonel Pollock, agree with me, that a slightly gradual increase in our rates would at worst cause nothing more than the temporary closing of a single pass and a decrease in the trade. Very probably, if pains were taken to explain the matter, the increase would be acquiesced in with nothing beyond a slight murmur. These people buy other things besides salt in our territories; the prices of these rise and fall. How is it that this leads to no serious complications? Are we really so despicable in their eyes that while they submit to the Bunnahs increasing their prices, they will not permit us to do the same?

15. I should propose to raise the rates which now stand at 4, 3, and 2 annas a maund to 6, $4\frac{1}{2}$, and 3 annas. Two or three years hence they might be again raised, and ultimately these might become a source of very considerable revenue, and, having in the meantime served as a lesson to our wild and lawless customers, that we are not to be dictated to where our own affairs are concerned, really and truly a source of political strength.

To enhance the duty would provoke a frontier war.

This is more than doubtful;

and, if true under the circumstances of the case, would be no sufficient argument against the measure.

ALLAN HUME,

Commissioner, *Inland Customs*.

APPENDIX A, STATEMENT 1.
1860-70 in each Mine in the Kohat District.

Statement of Salt sold and among

Rate per Kwhr in weight.

THE KOHAT MINES.

APPENDIX A, STATEMENT 2.

List of Salt Establishment, showing number of each grade and salaries of the same.

No.	Designation.	Salary.	Total.	No.	Designation.	Salary.	Total.
	JUTTA MINE.	Rs. A. P.	Rs. A. P.			Rs. A. P.	Rs. A. P.
1	Superintendent	100 0 0			Brought forward	.....	979 12 0
1	Darogah	50 0 0					
1	Mohurir	15 0 0			MUNZULLIE.		
1	Weighman	6 0 0		1	Havildar	9 0 0	
1	Jemadar	15 0 0		20	Sepoys, at Rs. 5 each	100 0 0	
4	Sepoys, at Rs. 6 each	24 0 0			Bheestie	2 10 0	
14	" 5 "	70 0 0	283 14 0				111 10 0
	Bheestie	2 6 0			BURBURA.		
	Stationery	1 8 0		1	Havildar	9 0 0	
	MALGEEN.			6	Sepoys, at Rs. 5 each	30 0 0	
1	Darogah	30 0 0			Bheestie	0 14 0	39 14 0
1	Mohurir	15 0 0			SPEENA.		
1	Weighman	6 0 0		1	Havildar	9 0 0	
1	Jemadar	15 0 0		4	Sepoys, at Rs. 6 each	24 0 0	
11	Sepoys, at Rs. 6 each	66 0 0	180 10 0	5	" 5 "	25 0 0	
9	" 5 "	45 0 0			Bheestie	1 4 0	59 4 0
	Bheestie	2 10 0			KURRUR.		
	Stationery	1 0 0		1	Havildar	9 0 0	
	NURREE.			3	Sepoys, at Rs. 6 each	18 0 0	
1	Darogah	25 0 0		7	" 5 "	35 0 0	
1	Mohurir	30 0 0			Bheestie	1 6 0	63 6 0
1	Weighman	6 0 0			GOOROOZAI.		
10	Sepoys, at Rs. 5 each	50 0 0	113 6 0	1	Havildar	9 0 0	
	Bheestie	1 6 0		15	Sepoys, at Rs. 5 each	75 0 0	
	Stationery	1 0 0			Bheestie	2 0 0	86 0 0
	KURRUCK.				SOORTUNG.		
1	Darogah	25 0 0		5	Sepoys, at Rs. 5 each	25 0 0	
1	Mohurir	15 0 0			Bheestie	0 10 0	25 10 0
1	Weighman	6 0 0			DHUND.		
1	Jemadar	15 0 0		4	Sepoys, at Rs. 5 each	20 0 0	
2	Sepoys, at Rs. 6 each	12 0 0			Bheestie	0 S 0	20 8 0
23	" 5 "	115 0 0	192 4 0		SHAH.		
	Bheestie	3 4 0		1	Havildar	9 0 0	
	Stationery	1 0 0		2	Sepoys, at Rs. 6 each	12 0 0	
	BAHADUR-KHEYL.			5	" 5 "	25 0 0	
1	Darogah	25 0 0			Bheestie	1 0 0	
1	Mohurir	15 0 0		1	Mohurir	30 0 0	
1	Weighman	6 0 0					77 0 0
1	Jemadar	15 0 0			GRAND TOTAL	.....	1,463 0 0
20	Sepoys, at Rs. 5 each	100 0 0	164 10 0				
	Bheestie	2 10 0					
	Stationery	1 0 0					
	NUNDRUKKA.						
1	Havildar	9 0 0					
7	Sepoys, at Rs. 5 each	35 0 0	45 0 0				
	Bheestie	1 0 0					
	Carried over	.....	979 12 0				

Appendix B.

The Sambhur Lake.

Importance of the question leads to the reproduction in *extenso* of the Assistant Commissioner's Annual Report of the management of the Sambhur Lake.

This report deals only with two months, and further particulars up to the close of this first working season are therefore subjoined.

Notwithstanding the great difficulty in obtaining labour, we had stored, previous to the setting-in of the rains, over $7\frac{1}{2}$ lakhs of maunds at a cost of 6·14 pies per maund.

This result under the circumstances may be accepted as very satisfactory.

The assumption of the management of the Sambhur Lake by the Inland Customs Department was so important a matter, and the Assistant Commissioner's Annual Report in regard to that management is really so full of useful information, that I have no hesitation in reproducing it in *extenso*.

2. This report, however, as regards financial results, deals only with two months; our assumption of management only dating from the 1st February 1870, and it will therefore be useful to state briefly the results obtained up to the close of this first working season in July, and the prospects which these hold out to us of our management proving successful in a financial as well as in every other point of view.

3. Notwithstanding the extraordinary difficulties we had to contend against in the matter of procuring labour (difficulties fully explained in the Assistant Commissioner's report), we succeeded, owing to the cordial assistance of the Jeypoor Durbar, and Major Bradford, the Political Agent of that State, as well as by great exertions on our own part, in securing a fair, although not abundant, supply of labour, and, previous to the setting-in of the rains, had succeeded in extracting and storing 756,656 maunds net* at a cost of Rs. 3-3-2. 12 per 100 maunds, or 6·14 pies per maund.

4. I consider this result satisfactory; when the working season set in, we discovered that we were in error as to this being practically a peculiarly favorable one for our purposes. True, the lake shrunk to a mere puddle, and thousands on thousands of tons of the finest salt formed near its centre, but this was several miles away from the nearest point at which storage was possible, and even had carriage been available, the expense of cartage for this long distance would have vastly increased the cost of our salt. Even in the case of our dams, or *paees*, owing to the native officials of the joint jurisdiction not having (in anticipation of our assumption) taken them in hand soon after the rains in 1869, these, when at last we succeeded in January 1870 in getting them taken in hand, were further out into the bed of the lake than they should have been, and consequently portage absorbed a much larger share of our by no means abundant supply of labour than it should have done. All things considered, $7\frac{1}{2}$ lakhs of maunds, stored at a minute fraction over half an anna per maund, may be accepted as a very good season's work for this particular first season, and Mr. R. M. Adam, the Assistant Commissioner, deserves great credit for the results he has obtained.

5. The experience now gained shows us that we may calculate on manufacturing $8\frac{1}{2}$ lakhs of maunds for a sum not

Mr. Little's future financial results.

* I use the word *net* advisedly. We really measured into stock 25 per cent. more than this. We strike this percentage off at present from our gross storage to allow for dryage, loss, and waste. Very probably experience will prove that we have assumed too high a figure for this, but at first it is best to be on the safe side.

exceeding Rs. 30,000; establishment for the year will not exceed Rs. 45,000; contingencies Rs. 5,000; payments to both States Rs. 4,00,000. Thus our total expenditure will not exceed Rs. 4,80,000. Per contra, if we sell $8\frac{1}{4}$ lakhs of maunds in the year (our limit up to which we pay no royalty), 172,000 maunds at 9 annas to Jeypoor, and the rest at 10 annas to the public, we shall realize Rs. 5,04,875, leaving a balance of Rs. 24,875 in our favor. Should we exceed this limit, every lakh of maunds above it will cost us in extra supervision and manufacture Rs. 8,000 as a maximum, and we shall pay on it a royalty Rs. 25,000, while we shall realize by its sale Rs. 62,500, thus obtaining a clear profit of Rs. 29,500.

6. So far all is favorable, but necessarily even the profit ^{so far favorable, but hinge} of Rs. 24,875 hinges on our *selling* $8\frac{1}{4}$ lakhs of maunds. ^{on the amount of salt sold by us,} If we only sell 785,200 maunds we should only just clear ourselves, whereas if we sold less we should be losers.

7. There appears, however, to be every prospect of our selling at least $8\frac{1}{4}$ lakhs of maunds. Notwithstanding the existence of large stocks of stolen salt outside our jurisdiction; notwithstanding the abnormally large sales that immediately preceded our taking charge; and notwithstanding the novelty of our arrangements, we have sold during the first five months of our management, from 1st February to 30th of June, 435,289 maunds, and have consequently only 389,711 maunds to sell during the remaining seven months to make up the $8\frac{1}{4}$ lakhs. In November, December, and January we ought certainly, unless something unforeseen occurs, to sell at least a lakh of maunds per mensem, and it will be strange if the sales of the other four months do not aggregate Rs. 90,000.

8. That by our instrumentality the Native States will realize a larger revenue from the lake than they have ever done, and that they have made excellent bargains in the arrangements they have entered into with us, is certain, and is not, I believe, denied by either of them. That Sambhur salt will be hereafter put into the market throughout Northern India far cheaper than would have otherwise been possible is also beyond doubt. Our officers have pulled well both with the officials and people of the Native States, the people of the immediate neighbourhood acknowledging their presence as a blessing, and if over and above all this, Government realizes some small profit, as compensation for the great extra trouble entailed upon some of its officers, I think the whole arrangement may be regarded as a very satisfactory one, notwithstanding the strong feeling that undoubtedly existed throughout Rajpootana against our assumption of the lake, and the erroneous notion there so widely diffused that to serve our own purposes we had coerced the native sovereigns into leasing the lake to us. The benefits to all parties arising from the arrangement will be permanent, while the injurious conceptions as to our motives and conduct will as time goes on give place to juster views.

The Native States gainers by the arrangements, &c.

ALLAN HUME,
Commissioner, Inland Customs.

THE SAMBHUR LAKE.

Assistant Commissioner's Report on the Sambhur Lake for 1869-70.

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THE SAMBHUR LAKE.

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EXAMINER'S FILE

EXAMINER'S AND INVESTIGATOR'S FILE NOTES

DISCREPANCIES

SEX

Indicates anything to facts of sex mechanism.

Indicates the presence or absence of a sex of the patient.

Sex of suspect unchanged.

There will be some

and some different signs.

Signs

Signs of unchanging female anatomy.

Female signs.

No distinct sign of increasing possibilities for change.

Indicates general condition of female.

CHANGES IN PUPILS

HEART AND BLOOD

CHANGES

Indicates

Indicates

CHANGES IN THE BLOOD AND BONES

Indicates the fragmentation condition.

Indicates the condition

Indicates

Indicates

Indicates the condition of a single condition the following condition is likely to occur

Signs of age.

CHANGES IN SKIN

Indicates the condition of skin and

Indicates the condition

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Indicates the condition

CHANGES IN BONES

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106. The imports brought by these different kinds of carriage on arrival at the mart for which they are intended are made over to an agent, and if the owners of the goods wish to purchase salt with the money realized from them, the agents remit the money by hoondee to Jeypoor or Ajmere, and from these places it is again sent by hoondee to Sambhur.

MONEY EMBARKED
IN TRADE.

Brought to Sambhur
principally by bills of
exchange.

107. The money embarked in the salt trade passes, as a rule, through the hands of a few extensive bankers who have agencies at Sambhur, Ajmere, Jeypoor, Jodhpur, Kishengurh, and Khoochawan.

108. These bankers give bills of exchange on their agencies at Sambhur, and send money as required by camel runners from Jeypoor and Ajmere.

Mode of remitting specie.

109. The only traders who risk bringing the money with them are the Maro Bhat and Kerowlee Brahmin Bunjaras, and then it is divided into sums of about fifty rupees, which each Bunjara carries in a long purse securely fastened round the waist.

Traders who bring their
own capital.

110. Salt merchants from Agra, Bhurtpoor, Delhi, Ferozepore, and occasionally from Tonk, Jhansie, and Kerowlee, send agents to look after their interests at Sambhur. When the markets are in a favorable condition those agents are ordered to purchase salt. The agents then go to the Sambhur stock brokers and tell them to make arrangements for the purchase and despatch of the order. The brokers proceed to the bankers and obtain the necessary sum, which the trader must refund to the agents of the bank at the mart to which the salt is to be taken, and at the same time he has to pay for the loan of the capital an interest and exchange rate* of Rs. 3 per cent. for every twenty-five days that the money remains unpaid.

Description of the process
adopted by traders when
effecting a purchase of
salt.

In addition to this, the broker has to be paid Re. 1-1 per 100 maunds for obtaining the money, seeing the salt cleared from our stores, hiring carriage for the despatch, and arranging about the traffic guard.

Supposing the salt to be intended for Agra, it is protected through the Jeypoor State by a Government traffic guard to the border of the Bhurtpoor State. When the despatch reaches the village of Nye-ka-Kooa, a village about a mile to the west of the city of Bhurtpoor, it is made over to an agent, who sees that the salt is emptied from the bags or carts and thoroughly dried† in the sun. It is then weighed and re-packed, and when the agent has assured himself of the actual quantity, a passport is written for to the Customs House at Agra.

The charge made for weighing and agency at Bhurtpoor is 8 annas per 100 maunds for agency and annas 8 for weighing.

On the arrival of the Government passport from Agra the despatch leaves Bhurtpoor, but sometimes despatches leave without the passport, and in the latter case it is sent by a messenger to the village of Uchnera on the Agra road, and awaits the arrival of the despatch. On the arrival of the despatch at our Customs cordon, a portion of the despatch is weighed, and when passed, it is taken to Agra and made over to the owner.

* This gives a rate of interest and exchange equal to Re. 43-8 per cent. per annum, or to give the details { Interest—Re. 1-4 per cent. for 25 days.
Exchange—Re. 1-12 " Agra to Sambhur.

† The traders all agree in stating that they incur a loss by dryage between Sambhur and the Customs line of 12-50 per cent.

THE SAMBHAR LAKE.

Traders' outlay and profit

III. The following table shows the traders' outlay incurred in purchasing and exporting 100 maunds of salt from Sambhar to the chief salt marts:—

Table showing the Traders' outlay per 100 maunds of Salt, and the average cost and profit per maund at the chief marts.

	Agro.	Tosk.	Kerowlie.	Rewari.	Ulwar.	Jhansi.
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Price of salt at 10 annas per maund ...	62 5 0	62 4 0	62 5 0	62 4 0	62 5 0	62 5 0
Private weighment at store ...	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Laborers employed in digging salt from store and filling despatches ...	0 3 0	0 3 0	0 3 0	0 2 0	0 2 0	0 2 0
Offering to the shrine of Sakumbari Devi ...	0 7 0	0 7 0	0 7 0	0 7 0	0 7 0	0 7 0
Traffic guard on an average despatch of 200 maunds ...	0 12 0	0 12 0	0 12 0	0 12 0	0 12 0	0 12 0
Stock brokers' commission at Rs. 3/- per 100 maunds ...	1 1 0	1 1 0	1 1 0	1 1 0	1 1 0	1 1 0
Carriage (cart hire) ...	21 11 0	...	...	...	...	...
Interest and remittance charge on sums expended at Sambhar ...	3 0 5	3 12 4	3 10 3	3 0 5	3 1 4	2 11 3
at 2 annas per maund ...	at 2 annas per maund ...	at 2½ annas per maund ...				
Load* dues ...	11 11 0	3 6 4	8 2 2	4 5 3	13 32 4	35 8 7
Agents' fees at 2 annas per 100 maunds at Bhuntipur ...	0 6 0	—	—	—	—	—
Weighing and re-weighing salt at Bhuntipur ...	0 9 0	—	—	—	—	—
Government duty on salt at Rs. 3 per maund ...	902 8 0	—	—	—	—	—
Carriage (camel hire) ...	61 6 0	—	23 2 0	24 4 0	22 31 0	215 23 6
Brokerage on salt at destination at annas 14-10 per 100 maunds ...	0 13 0	—	—	—	—	—
Weighing of 2½ maunds at 8 annas per 100 maunds ...	0 7 0	3 1 0	1 12 6	1 12 0	1 12 0	2 12 0
Godown hire, 5½ maunds ...	0 7 0	—	—	—	—	—
Cost of 5½ maunds ...	429 0 6	91 4 10	139 5 4	133 11 3	139 15 4	222 4 3
Cost per maund ...	41 8 2	1 1 3	1 7 6	1 8 2	1 7 6	2 6 4
Average proceeds of a maund ...	6 0 0	1 2 0	1 6 0	1 0 0	1 0 0	2 20 0
Profit ...	0 1 7	0 0 9	0 0 4	0 0 7	0 0 4	0 1 5

* Calculated on 100 maunds minus 5 per cent. dryage = 65 x 2 = Rs. 13-11-11.

Table of rates for the Traffic Guards who convey despatches "en route" to the chief marts.

NAME OF MART.	KIND OF CARRIAGE EMPLOYED.	VILLAGE AT LIMIT OF BHUNTPUR TERRIT.	DISTANCE IN MILES FROM BHUNTPUR.	Days occupied in going.	Days occupied in returning.	Total number of days.	COST OF GUARD AT 2 ANNAS PER DAY.
AGRO ...	Camels Bullocks Carts	... ... ... Mowha	100 100 100 100	10 10 10 13	5 5 5 5	15 15 15 15	Rs. A. P. 3 12 6 0 0 4 8 0 ...
TOSK ...	Camels Bullocks Carts	... ... ... Ajmere	40 40 40 40	4 5 5 5	10 7 7 7	16 12 12 12	1 12 0 1 12 0 1 12 0 1 12 0
KEROWLIE ...	Camels Bullocks Carts	... ... ... Gangapoor	100 100 100 100	10 10 10 13	5 5 5 5	15 15 15 19	3 12 0 3 12 0 3 12 0 4 2 0
REWARI ...	Camels Bullocks Carts	... ... ... Patan	90 90 90 90	9 15 11 11	4 4 4 4	13 16 15 15	3 4 0 4 12 0 3 12 0 3 12 0
ULWUR ...	Camels Bullocks Carts	... ... ... Tala Dholi	70 70 70 70	12 12 9 9	3 3 3 3	15 15 12 12	3 2 0 3 12 0 3 0 0 3 0 0
JHANSIE ...	Camels Bullocks Carts	... ... ... Madhopore	120 120 120 120	12 12 15 15	6 6 6 6	18 18 21 21	4 2 0 4 2 0 5 4 0 5 4 0

THE SAMBHUR LAKE.

112. Camels, bullocks, carts, and asses are the carriage employed for the export of salt.

CARRIAGE.
Kinds employed.

113. The following table will show the amount of salt exported by each kind of carriage:—

Exports effected by each kind.

		Number of Camels employed.	Number of Bullocks employed.	Number of Carts employed.	Number of Asses employed.
	Mds.				
Actual export of salt	236,955	18,915	31,825	908	526
Average loads	...	6½ Mds.	3 Mds.	18 Mds.	1 Mds.
As per average loads of carriage employed	236,912	122,947	95,475	17,961	526
Difference	Mds. 43				

114. On comparing the operations of each kind of carriage employed we find that—

Compared.

Camels exported	...	...	...	51.90 per cent.
Bullocks	“	...	...	40.30 ”
Carts	“	...	...	7.58 ”
Asses	“	...	...	0.22 ”
		Total	...	100.00

115. The subjoined table will show the relative proportion in numbers of the different kinds of carriage:—

Relative proportion which one kind of carriage bears to another.

	Camels.	Bullocks.	Carts.	Asses.
Camels	...	1.00	1.68	0.05
Bullocks	...	0.59	1.00	0.03
Carts	...	18.95	31.89	1.00
Asses	...	36.00	60.00	1.89

116. During the past year the traders were in the habit of entering as the destination of their goods any village just out of the Jeypoor boundary,* and this precludes my furnishing a table showing exactly the actual quantities which went to each chief mart, but the following table will show approximately the quantities which went in the directions of the chief marts, and the numbers of each kind of carriage employed:—

Exports of salt to the chief marts by each kind of carriage.

	KINDS OF CARRIAGE EMPLOYED.				
	Maunds.	Camels.	Bullocks.	Carts.	Asses.
Agra	...	99,203	11,682	9,491	176
Tonk	...	59,966	1,215	9,682	454
Kerowlee	...	24,265	1,371	5,531	47
Rewaree	...	22,561	2,270	2,877	26
Ulur	...	18,753	1,378	2,737	276
Jhansie	...	† 10,407	999	1,187	19

117. The general cost of carriage along the various routes varies according to the import trade which draws it into the neighbourhood, and to the urgency with which the salt merchants may wish to take advantage of increased rates at any of the chief salt marts.

Cost of carriage affected by imports, and demands for salt.

* Now all despatches have their final destinations entered.

† A portion of the salt which is entered for Tonk marts have been intended for Jhansie. But owing to reasons given in para. 116, exact detail cannot be furnished.

General cost of carriage
per maund to the chief
marts supplied.

118. The distances of the chief marts from Sambhur, the days occupied *en route*, and the average rates of the different kinds of carriage, as given in the following table, have been obtained from the principal traders of Sambhur.

As this information is of importance, care will be taken to prepare reliable tables and sketch maps of the Sambhur salt trade during the current year.

Chief Marts.	Distance from Sambhur, miles.	Kinds of carriage.	Days occupied.	Average rates of carriage on 100 maunds.	Rate per maund.	REMARKS.
				Rs. A. P.	Rs. A. P.	
Agra ...	390 {	1st Camels ...	23	84 6 0	0 13 6*	Hire paid in arrears.
		2nd Bullocks ...	45	81 4 0	0 13 0	Ditto in advance.
		3rd Carts ...	30	75 0 0	0 12 0	
Jhansie ...	260 {	1st Bullocks ...	60	112 8 0	1 2 0	Ditto in do.
		2nd Camels ...	30	115 10 0	1 2 6	Ditto in arrears.
Ferozepore	144 {	1st Camels ...	15	59 6 0	0 9 6	Ditto in do.
		2nd Bullocks ...	25	56 4 0	0 9 0	
		3rd Asses ...	15	56 4 0	0 9 0	Ditto in advance.
Rewaree ...	150 {	1st Bullocks ...	25	53 2 0	0 8 6	Ditto in do.
		2nd Camels ...	15	56 4 0	0 9 0	Ditto in arrears.
		3rd Carts ...	20	53 2 0	0 8 6	Ditto in advance.
Kerowlee	120 {	1st Bullocks ...	20	50 0 0	0 8 0	Ditto in do.
		2nd Camels ...	15	53 2 0	0 8 6	Ditto in arrears.
		3rd Carts ...	15	50 0 0	0 8 0	Ditto in advance.
Tonk ...	60 {	1st Carts ...	8	21 14 0	0 3 6	
		2nd Bullocks ...	12	21 14 0	0 3 6	Ditto in do.

PENAL ACTION.
PETTY THEFTS.

How dealt with.

Leniency politi.

NO CASE HAS BEEN TRIED
BY SAMBHUR LAKE COURT.

ATTEMPTS AT STEALING
SALT.
Two cases.

First attempt at Kheggers
on 1st Feb.

119. During the first few days of our operations, two or three cases of petty thefts were brought to my notice, but as on investigation these were found to have been committed more through ignorance of our rules than intentional smuggling, and were besides of such a trifling nature, the offenders were dismissed with a severe reprimand.

120. Formerly the people about Sambhur were allowed to take away salt for their private consumption without let or hindrance, therefore to have tried and punished the first few offenders under our rules until those were well promulgated would have been harsh and impolitic.

121. Excepting the above cases no offence of a sufficiently grave nature against our Customs Rules has occurred to warrant investigation and trial in the Sambhur Lake Court.

122. Since the 1st February only two attempts at stealing salt have been made. Both these cases occurred at places which are well apart from our operations, and were not, up to the time of these attempts, thought worth guarding. The first attempt was made early in February, but it was considered more as a trial attempt to see what action we would take.

123. This was at the eastern extremity of the lake, and the establishing of two posts, one at Kheggers, and the other on

* In the column showing the cost per maund it will be seen that the camel carriage is invariably paid in arrears, and this custom, although it increases the price of carriage, is more convenient to the trader than paying in advance.

the road which passes close to Kyar No. 3, has prevented any further attempt in that direction.

124. The second attempt was reported to me about the end of March, and from an immediate inspection of the ground it was seen that about eleven men were engaged in the attempt. The part selected for this theft was at the western extremity of our jurisdiction, close to the promontory of Mata Pahar.

The salt at this particular spot is very fine grained and not such as would compete in the market with the usual production of the lake; still as robbery had been attempted, a patrolling party was placed at our westernmost post, Duryee, and no further attempts were made up to the close of the official year.

125. The men suspected in this case are said to belong to the village of Khakirda, a village in the Jodbpoor State, just outside of our jurisdiction.

126. Considering the former wholesale thieving which report says was perpetrated by organized bands amounting to upwards of 2,000 men, and recognized by at least one of the joint officials in charge of the lake, it is satisfactory to think that the moral effect of our rule has done so much to restrain those professional salt stealers.

127. At my suggestion the Officer in charge of the Asapoora Division sent one of our establishment to the village of Narana (due south from Sambhur about eight miles) to enquire about large quantities of stolen salt said to be stored there. The peon who was sent informed me that about the end of January 1870 the village contained about 17,000 maunds of salt, and that now about 10,000* maunds remain unsold. The owners sell it at annas 6-6 per maund; the officials of the Jeypoor Government charge a duty of Re. 1 per maund, and also a road due of annas 1-6 per maund. In addition to this the purchaser has to pay about 6 pies per maund for weighing, &c., or a total sum per maund of Re. 1-8-6. This salt is being sold throughout the Jeypoor State only, the purchasers effecting a saving over Government salt of annas 1-6 per maund.†

128. Shortly after the issue of the notification, dated 29th January 1870, which ordered that on all quantities of salt above 20 seers the owners should pay at the rate of ten annas per maund into the Sambhur Customs House and receive a protective pass, or remove the salt out of our jurisdiction before the 28th February, eighty-two of the inhabitants of Sambhur showed their willingness to conform to our rules, by coming forward to pay for the salt which they had stored in their private dwellings. The quantities varied in extent from maunds 8-20 to 25 seers, and the duty on the total quantity of 138 maunds amounted to Rs. 86-4.

129. The main cause of the suppression of wholesale thefts is due to the fact that better systems of guarding and patrolling are now in force. Our own men are on the alert all during the day and night, and our officers patrol at uncertain hours of the night to see that they are at their posts.

130. A secondary cause may be attributable to the fact, that I took special pains to make it known to all the people about

Second attempt at western extremity.

Wholesale thieving on the decline.

Stolen salt in villages adjoining our jurisdiction.

GENERAL WILLINGNESS OF THE PEOPLE TO CONFORM TO OUR RULES.

SUPPRESSION OF ILLICIT TRADE
due to a better system of supervision,

and the dread of punishment.

* Of this 10,000 maunds, he states that the village of Narana contains 8,000 maunds, and the adjoining villages of Naroda, Maudpi, and Basra the remaining 2,000 maunds.

† A trader taking salt from Sambhur would have to pay 10 annas per maund to Government, and Re. 1 for every maund sold in the Jeypoor State.

Sambhur and within our jurisdiction, that however painful it would be to exercise the powers entrusted to me, in kindness to all offenders at heart, I would inflict on the first offenders against our laws the full extent of the punishments accorded to the offences of which they were found legally guilty.

ESTABLISHMENT SAN-
TIONED AND ENTERTAINED
ON 31ST MARCH.

131. The following table shows the total strength of establishment sanctioned, and portion entertained on 31st March 1870:—

132. The three Assistant Patrols employed in this Division, Messrs. Brookes, Angas, and Aleem Oollah, have worked hard and have given general satisfaction.

OFFICERS.

133. Considering the great laxity of discipline which pervaded all the different classes of the former employés under the Governments, it is satisfactory to have to report that all the old employés entertained by us have conducted themselves well.

MEN.

Former employés have given satisfaction.

134. They have all tried to do their work in a willing manner, and the introduction of some of the best peons from the Internal Department and Imperial Customs Line as subordinate officers has aided very considerably in producing the above results.

Result due to the introduction of a few of our trained men.

135. Formerly the peons received Rs. 4 per month, but Pay of former employés. were often kept in arrears for a period of six months at a time.

136. The increased and regular rate of pay offered by our Government was looked on as a boon, and nearly all the former peons were eager to enter our service.

137. When entertaining the former employés, I allowed several old men to obtain employment, but some very old and infirm men I was compelled to reject. The old men who were employed are deputed to look after the day duties of the posts, so that the younger and active men may attend to the more onerous duties of the night.

138. According to the custom of Native States, appointments Boys. are generally hereditary, consequently many boys of about twelve years of age and upwards presented themselves for employment, stating that they were servants of the joint Governments. Of these, a few about the age of seventeen were entertained.

139. To have imported a new set of men for the carrying out of our arrangements would have deprived many of the inhabitants of Sambhur of their means of support, and would also have been the cause of great dissatisfaction to the people, and the means of creating a spirit of antagonism to our *régime*. It was therefore as an act of policy on the part of our Department that this concession was made, and the conduct of the men and the paucity of salt thefts have amply justified it.

Policy of entertaining former employés.

140. The percentage of the former employés of different grades now serving in the Department amounts to 43.52 per cent. of the 193 men who composed the subordinate establishment.

141. Many finely built, active looking men swarmed to Sambhur from the neighbouring States of Jeypoor, Jodhpoor, and Kishengurh with the hope of obtaining employment, and from these were selected a number of good men who now form part of our establishment.

No difficulty experienced in obtaining candidates for employment.

142. Placing out of account some breaches of discipline (which might be expected in a newly organized force), such as leaving their posts during the day without permission, being careless on guard, and one or two cases of insubordination, all of which were firmly dealt with at the time of their occurrence, the general conduct of the force has been all that could be desired.

General good conduct of force.

THE SAMDHUR LAKE.

Custos employed.

143. The subjoined table shows the different castes employed and the percentage of Mahomedans and Hindoos on the total strength :—

	Total No. of executives sanctioned	Total No. of executives employed on site	No. of Mahomedans	No. of Hindoos	No. of British	No. of Europeans	No. of Indians	No. of other Indians native	No. of Indians for duty standing on the strength of the division	No. of Indians of the same rank	No. of European native
Sub-Assistant Patrols	...	4	4	3	1	—	—	—	—	—	—
Kotegulis	...	3	2	2	1	—	—	—	—	—	—
Jemadars	...	12	12	9	3	—	—	—	—	12	—
Foremen	...	6	5	4	1	—	—	—	—	—	—
Daffadars	...	6	6	1	5	—	—	—	—	—	—
Weldermen	...	6	6	3	3	—	—	—	—	—	—
Mohuirs	...	10	5	2	3	—	—	—	—	—	—
Peons	...	127	112	83	29	12	22	31	117	22	22
Asst. Commr.'s Orderlies.	—	1	1	1	—	—	—	—	—	—	—
Peons	...	10	10	0	10	—	—	—	—	—	—
Total	...	217	181	112	74	12	22	31	121	22	22
Percentage on force employed.	25.2%	47.4%	—	—	—	—	71.5%	21.5%	47.2%

Health of force.

144. So far as my experience goes, the vicinity of the lake appears to be unhealthy, and fever of a low type is very prevalent.* A great number of our men have from time to time suffered severely from it, and two cases amongst the peons terminated fatally.

Casualties.

145. The following table shows the casualties which occurred during the two months of our operations :—

Statement showing the Casualties amongst the Subordinate Establishment during the official year 1869-70.

	NO. OF EACH RANK AND GRADE.										Total Subordinate Establishment.	Percentage of total of each kind of casualty on total Establishment.
	Sub-Assistant Patrols.	Kotegulis.	Jemadars.	Foremen.	Daffadars.	Weldermen.	Mohuirs.	Jemadars.	Peons.	Peons.		
Total sanctioned	...	4	3	12	6	6	8	10	1	10	127	21.7
Total employed	...	4	3	12	5	5	6	6	1	10	123	18.3
During the year died	...	—	—	—	—	—	—	—	—	—	—	—
Ditto dismissed	...	—	—	—	—	—	—	—	—	—	—	—
Ditto deserted	...	—	—	1	—	—	—	—	—	—	—	—
Ditto resigned	...	—	—	—	—	—	—	—	—	—	—	—
Total casualties	...	—	—	1	—	—	—	2	—	—	6	0
Percentage of ditto	...	—	—	—	—	—	—	40	—	—	4.2%	4.6%

Dismissals.

146. On my entertaining the old employés, a man with crippled hands concealed them under his mantle, and when the circumstance was brought to my notice, as the malformation was of such a nature as to prevent his wielding either a staff or a

* The Troop of the Jat Horse suffered very severely from fever, although happily no fatal cases occurred. On one day as many as twenty-six troopers and fourteen grass-cutters were down with it.

sword, I was compelled to dispense with his services. In the other case of dismissal, the peon absented himself from his post without permission for three days.

147. The cause alleged in the three cases of resignation was the unhealthiness of the place.

Resignations.

148. With the exception of the very old men, all the peons now wear a distinctive uniform; and those near Head Quarters, who can be spared during the mornings and evenings, are being drilled by the Officer in charge of the Company of Native Infantry which is here on duty.

149. The present uniform is only for summer wear, and is as follows:—

UNIFORM FOR THE FORCE
AND DRILL.Differs from the Depart-
mental uniform.

Turban, red.

Coat (jumper pattern), slate colored.

Trousers (loose, but fitting closely at the ankle by means of a button), dark yellow.

Arms; a sword or carbine.

150. As the men composing our force may at any moment be called out in pursuit of smugglers, and may have to enter the soft bed of the lake, the long skirts of the departmental coat and the tight fitting trousers would much impede their activity. The present uniform offers no such difficulties, and should the men have to enter the lake, they can roll their loose fitting trousers well up on the leg at a moment's notice.

Reason for innovation

In shape.

151. No workmen could be found here to dye the coats the dark blue of the departmental color, and as the uniforms had to be made here, and the slate color was the best color available, I sanctioned its adoption.

In color.

152. Having dealt with the uniform of the subordinates, before leaving this subject, I would respectfully venture to suggest that some simple, but at the same time neat and inexpensive uniform should be recommended for the sanction of Government for the higher grades of this division.

Suggestion for the adop-
tion of simple uniform for
the superior grades in
this Division.

153. Situated as the officers of this division are, in foreign territory, and coming continually in contact with native officials in either their public or private capacities, as the Asiatic mind is prone to any outward appearance which seems to indicate power, the moral effect of a uniform would have a beneficial effect in enhancing the value of its wearers to the Government which they serve.

Why urged.

154. The good effects of our system of traffic guards are now being appreciated by the traders. At first considerable delay was experienced by them, owing to their not quite understanding it, and in agreeing amongst themselves and fixing the shares of those who would travel under one traffic guard. Some traders with small despatches thought the rates high, and tried to persuade the officer who was arranging the clearance of despatches to accept so much per head for their bullocks; when they could not succeed in this, they preferred risking their despatch without a traffic guard. Their goods were cleared out of the outer limit, and the day after they returned and asked for a traffic guard, as their goods had been interfered with by the Raj officials, and the duty they wished to levy was far greater than they would have had to pay for a guard. As they could not then obtain a guard, they, as well as others, profited

TRAFFIC GUARDS.

by the lesson, and now the system is looked on as a safeguard from Thakoors interference.

Cases of extortion of road dues by Thakoors.

Liable to increase.

Castes employed.

Inducement to service.

ACCOMMODATION.

For officers,

and men.

MISCELLANEOUS.
GENERAL SATISFACTION OF TRADERS.

As their former means cannot now obtain all they want.

some dissatisfaction has been evinced.

Their complaints are listened to at all hours,

and the object of the Department explained.

Difficulty in satisfying so many interests.

155. Only three cases of extortion of blackmail have been reported since we commenced operations; and considering that the system is all in favor of the Durbars, and directly against the interests of the sedentary Chiefs, who have hitherto looked upon the road dues levied on the Sambhur salt trade as a legitimate source of revenue, it is astonishing that there have been so few interferences.

156. Up to the present time, I am told that no compensation has as yet been given to the Thakoors; and if compensation is withheld, it is just possible that the Thakoors may revert to their former custom of levying transit dues, and run the risk of the charges being proved against them.

157. The men composing the traffic guard are chiefly Mahomedan residents of Sambhur. The inducement for good service held out to this class while engaged in this temporary employment is, that as vacancies occur in the permanent establishment, the best men are transferred into it.

158. Gradually our officers and men are being afforded such accommodation as is consistent with actual comfort during the coming hot season.

159. I have appropriated, without any dissent on the part of the officials, four old buildings near the city for the use of the men who guard the salt in store, and at the other stores mud huts are being built by the men themselves, the cost of thatching to be borne by Government.

160. Up to the close of the official year, the traders seem to have been as well satisfied as the nature of native traders will permit them to be with our arrangements, and accepted any salt which was opened in either of the Divisions.

161. Formerly, a judicious bribe enabled the traders to obtain the best salt in store, and now that the old stocks have to be disposed of, to enable a speedy settlement of accounts with the joint Governments, and isolated small stocks have to be cleared away; to enable the Department to arrange for the better selection of store-sites, and a more efficient guarding of the lake boundary, some heaps had to be cleared away which the traders did not consider quite up to the mark. This occasioned some dissatisfaction, and constant appeals were made to me to open other heaps.

162. When traders have, or fancy they have, a grievance, and come to me, I make a point of seeing them at all hours and patiently hearing what they have to say, and as patiently impressing on them that no gain accrues to Government in giving them bad salt, but that where a heap has to be cleared away, no other salt will be sold till that heap has been disposed of. But if the heap is *bad*, i. e., contains a large proportion of sand, or impure crust from other old heaps, if they (the principal traders of Sambhur) will submit a petition to that effect, and the officer in charge of the store will verify the same, the objectionable store will be at once closed and another heap opened.

163. As any system approaching to order is entirely foreign to the native mind, and as there are so many different interests concerned, if we attempted to satisfy each individual interest at the sacrifice of any of our departmental arrangements, our position would be on a par with the fable of the man and his ass.

164. Their individual idea of fairness consists in a wish that Government would allow the extensive speculators to purchase an entire heap of the very best quality of salt to be made over to them at such times as they might require, and that all salts of an inferior description should be made over to outsiders and petty traders. The gain to a trader in a transaction of this kind is obvious, as he would always be in a position to command a higher market value for his goods.

165. The most amicable relation has been most studiously maintained with the native officials of the joint Governments and other well-to-do residents of the neighbourhood.

166. All classes of the native community with whom I have come in contact have been uniformly civil and obliging.

167. The people of the neighbourhood look upon the presence of British Officers as a blessing, as it frees them from much of the petty oppression to which they were subjected prior to our advent.

168. I would here beg to offer my thanks to the Political Agents of the joint Governments who have rendered this Division every assistance in their power; more especially would I thank Major Beynon and Captain Bradford, the Officers of the Jeypoor Agency, with whom I have come most in contact, for their support and courtesy in official matters.

169. In conclusion, I would beg to remark that as the present report deals with only two months of the past official year, it is wanting in much information with regard to details of manufacture and trade, which, under other circumstances, would have been furnished.

170. Due exertion will be made during the present year to obtain and note for future submission to Government all obtainable facts which bear on those important subjects.

FRIENDLY RELATIONS WITH NATIVE OFFICIALS AND OTHERS.

All classes of the native community civil and obliging.

The presence of British Officers beneficial to the residents of the neighbourhood.

THANKS DUE TO POLITICAL AGENTS.

CONCLUSION.

PRESENT REPORT WANTING IN MANY INTERESTING DETAILS,

which will be carefully collected for future submission.

R. M. ADAM,
Asst. Commr., Inland Customs.

Treaty between the British Government and the Maharaja of Jeypoor regarding the lease of the joint property in salt on the Sambhur Lake

Treaty between the British Government and His Highness S. RAM SINGH, Maharaja of Jeypoor, G. C. S. I., his heirs and successors, executed on the one part by Major WILLIAM H. BEYNON, Political Agent at the Court of Jeypoor, under authority from Lieutenant-Colonel RICHARD HARTE KEATINGE, C. S. I. and v. c., Agent to the Governor General for the States of Rajpootana, in virtue of the full powers vested in him by His Excellency the Right Hon'ble RICHARD SOUTHWELL BOURKE, EARL OF MAYO, VISCOUNT MAYO OF MONYCROWER, BARON NAAS OF NAAS, K. P., G. M. S. I., P. C., S. C., S. C., Viceroy and Governor General of India, and on the other part by Nawab MAHOMED FAIZ ALI KHAN, Bahadoor, in virtue of the full powers conferred on him by Maharaja Ram Singh aforesaid.

ARTICLE I.

Subject to the conditions contained in the following Agreement, the Government of Jeypoor will lease to the British Government its right of manufacturing and of selling salt within the limits of the territory bordering on the Sambhur Lake, as hereinafter defined in Article IV, and of levying duties on salt produced within such limits.

ARTICLE II.

This lease shall continue in force until such time as the British Government desires to relinquish it, provided that the British Government shall give notice to the Government of Jeypoor of its intention to terminate the arrangement two full years previous to the date on which it desires the lease to cease.

ARTICLE III.

To enable the British Government to carry on the manufacture and sale of salt at the Sambhur Lake, the Jeypoor Government shall empower the British Government, and all Officers appointed by the British Government for such purposes, to enter and search, in case of suspicion, houses and all other places enclosed or otherwise within the limits hereinafter defined, and to arrest and punish with fine, imprisonment, confiscation of goods, or otherwise, any and all persons detected within such limits in the violation of any of the rules or regulations which may be laid down by the British Government in regard to the manufacture, sale, or removal of salt, or the prevention of unlicensed manufacture or smuggling.

ARTICLE IV.

The strip of territory bordering on the shores of the lake, including the town of Sambhur and twelve other hamlets, and comprehending the whole of the territory now subject to the joint jurisdiction of the States of Jeypoor and Jodhpoor, shall be demarcated, and the whole space enclosed by such line of demarcation, as well as such portions of the lake itself, or of its dry bed, as are now under the said joint jurisdiction shall be held to constitute the limits within which the British Government and its Officers are authorized to exercise the jurisdiction referred to in Article III.

ARTICLE V.

Within the said limits, and so far as such measures may be necessary for the protection or furtherance of the manufacture, sale, or removal of salt, the prevention of smuggling, and the enforcement of the rules laid down in accordance with Article III of this Agreement, the British Government, or the Officers by it empowered, shall be authorized to occupy land for building or other purposes, to construct roads, erect barriers, hedges or buildings, and to remove buildings or other property. If any land paying land revenue to the Government of Jeypoor be occupied under the authority of the British Government for any of the purposes aforesaid, the British Government shall pay to the Government of Jeypoor an annual rent equal to the amount of such revenue. In every case in which anything involving injury to private property shall be done by the British Government or its Officers under this Article, one month's previous notice shall be given to the Government of Jeypoor, and in all such cases proper compensation shall be paid by the British Government on account of such injury. In case of difference between the British Government or its Officers and the owner of such property as to the amount of the compensation, such amount shall be determined by arbitration. The erection of any buildings within the said limits shall not confer on the British Government any proprietary right in the land, which, on the termination of the lease, shall revert to the Government of Jeypoor, with all buildings or materials left thereon by the British Government. No temples or places of religious worship shall be interfered with.

ARTICLE VI.

Under the authority of the Jeypoor Government, the British Government shall constitute a Court, presided over by a competent Officer, who shall usually hold his sittings within the above-mentioned limits, for the trial and punishment, on conviction, of all persons charged with violation of the rules and regulations referred to in Article III, or offences connected therewith; and the British Government is authorized to cause the confinement of any such offenders sentenced to imprisonment, either within the aforesaid limits or within its own territories as may seem to it most fitting.

ARTICLE VII.

From and after the date of the commencement of the lease, the British Government will, from time to time, fix the price at which salt manufactured within the said limits, other than the salt to be delivered under the second clause of this Article, shall be offered for sale. The Jeypoor Government shall be entitled to receive annually at the place of manufacture from the British Government, for the consumption of the Jeypoor State, any quantity of salt which the Jeypoor Government may demand, not exceeding one hundred and seventy-two thousand (172,000) British Indian maunds, paying for the same at the rate of nine (9) annas (British Curreney) per maund. The Jeypoor Government will be at liberty to sell such salt at any price that it may fix.

ARTICLE VIII.

Of the stocks of salt owned jointly by the Governments of Jeypoor and Jodhipoor, and existing within the said limits at the commencement of the lease, the share belonging to the Jeypoor Government, being the half of the stocks above-mentioned, shall be transferred by the said Government to the British Government on the following terms:—In accordance with custom, the Government of Jeypoor will transfer its share in five hundred and ten thousand (510,000) British Indian maunds of salt to the British Government free of cost. The price to be paid for the share of the Jeypoor Government in the remainder of the said stocks shall be reckoned at six and a half annas ($6\frac{1}{2}$) per British Indian maund, and payment shall be made at this rate by the British Government to the Government of Jeypoor, provided that the said payment of six and a half annas per maund to the Government of Jeypoor shall only commence when salt in excess of eight hundred and twenty-five thousand (825,000) British Indian maunds is sold or exported by the British Government in any year, and then only on the share of such excess which belongs to the Government of Jeypoor; and until the aggregate of such yearly excesses amounts to the full quantity of the stock of salt transferred over and above the said five hundred and ten thousand British Indian maunds, the British Government shall not pay the royalty of 20 per cent. on the sale price of such excess, as provided in Article XII. In reckoning the said eight hundred and twenty-five thousand maunds, the amount of salt reserved for the consumption of the Jeypoor State under Clause 2 of Article VII shall be included.

ARTICLE IX.

No tax, toll, transit duty, or due of any kind whatsoever, shall be levied by the Jeypoor Government, or shall by it be permitted to be levied by any other person, on any salt manufactured or sold by the British Government within the said limits.

or while in transit through the Jeypoor territory and covered by a British Pass *en route* to any place outside the Jeypoor territory, provided that on all salt delivered under Article VII, or sold for consumption within the territory of Jeypoor, the Government of that State will be at liberty to levy whatever tax it may please.

ARTICLE X.

Nothing in this Agreement shall be held to bar the sovereign jurisdiction of the Jeypoor Government, within the aforesaid limits, in all matters, civil and criminal, not connected with the manufacture, sale or removal of salt, or the prevention of unlicensed manufacture or smuggling.

ARTICLE XI.

The Government of Jeypoor shall be relieved of all expenses whatsoever connected with the manufacture, sale, and removal of salt, and the prevention of unlicensed manufacture or smuggling within the limits aforesaid; and in consideration of the lease granted to it, the British Government agrees to pay to the Jeypoor Government, in two half-yearly instalments, an annual rent of one hundred and twenty-five thousand (125,000) Rupees, British Currency, on account of the share of the Jeypoor Government in the salt sold within the said limits, and one hundred and fifty thousand (150,000) Rupees, British Currency, in compensation for duties on salt now levied by the Jeypoor Government, and surrendered under the present Agreement; and the total sum of such annual rent, amounting to two hundred and seventy-five thousand (275,000) Rupees, British Currency, shall be paid without reference to the quantity of salt actually sold in, or exported from, the said limits.

ARTICLE XII.

If the amount of salt sold in, or exported from, the said limits by the British Government in any year shall exceed eight hundred and twenty-five thousand (825,000) British Indian maunds, the British Government shall pay to the Government of Jeypoor on all such excess (subsequent to the exhaustion of the stock referred to in Article VIII) a royalty at the rate of 20 per cent. on the price per maund which shall have been fixed as the selling price under the first clause of Article VII. In the event of any doubts arising as to the amount of salt on which royalty is claimable in any year, the accounts rendered by the principal British Officer in charge at Sambhur shall be deemed conclusive evidence of the amounts actually sold or exported by the British Government within the periods to which they refer, provided that the Jeypoor Government shall not be debarred from deputing one of its own Officers to keep a record of sales for its own satisfaction.

ARTICLE XIII.

The British Government agrees to deliver annually (7,000) seven thousand British Indian maunds of good salt, free of all charges, for the use of the Jeypoor Durbar; such salt to be delivered at the place of manufacture to any Officer empowered by the Jeypoor Government to receive it.

ARTICLE XIV.

The British Government shall have no claim on the land or other revenue, unconnected with salt, payable from the town of Sambhur, or other villages or lands included within the limits aforesaid.

ARTICLE XV.

The British Government shall not sell any salt outside the limits aforesaid within the Jeypoor territory.

ARTICLE XVI.

If any person employed by the British Government, within the said limits, shall have absconded after committing an offence, or if any person shall have absconded after committing a breach of the rules laid down under Article III, the Jeypoor Government shall, on sufficient evidence of his criminality, make every effort to cause his arrest and surrender to the British authorities within the said limits, in case of his passing through, or taking refuge in, any part of the Jeypoor territories.

ARTICLE XVII.

None of the conditions of this Agreement shall have effect until the British Government shall actually assume charge of the manufacture of salt within the said limits. The British Government may determine the date of so assuming charge, provided that such date shall be one of the dates following, *viz.*, the 1st November 1869, the 1st May or the 1st November 1870, or the 1st May 1871. If such charge be not assumed on or before the 1st May 1871, the conditions of this Agreement shall be null and void.

ARTICLE XVIII.

None of the conditions contained in this Agreement shall be in any way set aside or modified without the previous consent of both Governments, and should either party fail or neglect to adhere to these conditions, the other party shall cease to be bound by this Agreement.

(Signed) W. H. BEYNON,
Political Agent.

(Signed) NAWAB MAHOMED FAIZ ALI KHAN
 BAHADOOR.

Signed, Sealed and Exchanged at Simla, on the seventh day of August, in the year of our Lord one thousand eight hundred and sixty-nine.

(Signed) S. RAM SINGH.

 ,, MAYO.

This Treaty was ratified by His Excellency the Viceroy and Governor General of India, at Simla, on the seventh of August 1869.

(Signed) W. S. SETON-KARR,
Secy. to the Govt. of India, Foreign Dept.

**Treaty between the British Government and the Maharaja of Jodhpooor
regarding the lease of the joint property in salt on the
Sambhur Lake.**

Treaty between the British Government and His Highness Maharaja TUKHT SINGH, G. C. S. I., of Jodhpooor, his heirs and successors, executed on the one part by Colonel JOHN C. BROOKE, Officiating Political Agent at the Court of Jodhpooor, under authority from Lieutenant-Colonel RICHARD HARTE KEATINGE, C. S. I. and V. C., Agent to the Governor General for the States of Rajpootana, in virtue of the full powers vested in him by His Excellency the Right Honble RICHARD SOUTHWELL BOURKE, EARL OF MAYO, VISCOUNT MAYO OF MONYCROWER, BARON NAAS OF NAAS, K. P., G. M. S. I., P. C., &c., &c., Viceroy and Governor General of India, and on the other part by JOSHEE HUNSRAJ, Moosahib of Marwar, in virtue of the full powers conferred on him by Maharaju TUKHT SINGH aforesaid.

ARTICLE I.

Subject to the conditions contained in the following Agreement, the Government of Jodhpooor will lease to the British Government its right of manufacturing and of selling salt within the limits of the territory bordering on the Sambhur Lake, as hereinafter defined in Article IV, and of levying duties on salt produced within such limits.

ARTICLE II.

This lease shall continue in force until such time as the British Government desires to relinquish it, provided that the British Government shall give notice to the Government of Jodhpooor of its intention to terminate the arrangement two full years previous to the date on which it desires the lease to cease.

ARTICLE III.

To enable the British Government to carry on the manufacture and sale of salt at the Sambhur Lake, the Jodhpooor Government shall empower the British Government, and all Officers appointed by the British Government for such purposes, to enter and search, in case of suspicion, houses and all other places enclosed or otherwise, within the limits hereafter defined, and to arrest and punish with fine, imprisonment, confiscation of goods or otherwise, any and all persons detected within such limits in the violation of any of the rules or regulations which may be laid down by the British Government in regard to the manufacture, sale, or removal of salt, or the prevention of unlicensed manufacture or smuggling.

ARTICLE IV.

The strip of territory bordering on the lake, including the town of Sambhur and twelve other hamlets, and comprehending the whole of the territory now subject to the joint jurisdiction of the States of Jodhpooor and Jevpoor, shall be demarcated, and the whole space enclosed by such line of demarcation, as well as such portions of the lake itself, or of its dry bed, as are now under the said joint jurisdiction, shall be held to constitute the limits within which the British Government and its Officers are authorized to exercise the jurisdiction referred to in Article III.

ARTICLE V.

Within the said limits, and so far as such measures may be necessary for the protection or furtherance of the manufacture, sale, or removal of salt, the prevention of smuggling, and the enforcement of the rules laid down in accordance with Article III of this Agreement, the British Government, or the Officers by

it empowered, shall be authorized to occupy land for building or other purposes, to construct roads, erect barriers, hedges, or buildings, and to remove buildings or other property. If any land paying land revenue to the Government of Jodhpooe be occupied under the authority of the British Government for any of the purposes aforesaid, the British Government shall pay to the Government of Jodhpooe an annual rent equal to the amount of such revenue. In every case in which anything involving injury to private property shall be done by the British Government or its Officers under this Article, one month's previous notice shall be given to the Government of Jodhpooe, and in all such cases proper compensation shall be paid by the British Government on account of such injury. In case of difference between the British Government or its Officers and the owner of such property as to the amount of the compensation, such amount shall be determined by arbitration. The erection of any buildings within the said limits shall not confer on the British Government any proprietary right in the land, which, on the termination of the lease, shall revert to the Government of Jodhpooe, with all buildings or materials left thereon by the British Government. No temples or places of religious worship shall be interfered with.

ARTICLE VI.

Under the authority of the Jodhpooe Government, the British Government shall constitute a Court, presided over by a competent Officer, who shall usually hold his sittings within the above-mentioned limits, for the trial and punishment, on conviction, of all persons charged with violations of the rules and regulations referred to in Article III, or offences connected therewith; and the British Government is authorized to cause the confinement of any such offenders sentenced to imprisonment, either within the aforesaid limits or within its own territories, as may seem to it most fitting.

ARTICLE VII.

From and after the date of the commencement of the lease, the British Government will, from time to time, fix the price at which salt manufactured within the said limits, and intended for exportation beyond the limits of the Jodhpooe and Jcypoor States, shall be offered for sale.

ARTICLE VIII.

Of the stocks of salt owned jointly by the Governments of Jodhpooe and Jcypoor, and existing within the said limits at the commencement of the lease, the share belonging to the Jodhpooe Government, being the half of the stocks above-mentioned, shall be transferred by the said Government to the British Government on the following terms:—The Jodhpooe Government will transfer its share in five hundred and ten thousand (510,000) British Indian maunds of salt to the British Government free of cost. The price to be paid for the share of the Jodhpooe Government in the remainder of the said stocks shall be reckoned at six and a half annas (6½) per British Indian maund, and payment shall be made at this rate by the British Government to the Government of Jodhpooe, provided that the said payment of six and a half annas per maund to

the Government of Jodhpoor shall only commence when salt in excess of eight hundred and twenty-five thousand (825,000) British Indian maunds is sold or exported by the British Government in any year, and then only on the share of such excess which belongs to the Government of Jodhpoor; and until the aggregate of such yearly excesses amounts to the full quantity of the stocks of salt transferred over and above the said five hundred and ten thousand (510,000) British Indian maunds, the British Government shall not pay the royalty of 20 per cent. on the sale price of such excess, as provided in Article XII.

ARTICLE IX.

No tax, toll, transit duty, or due of any kind whatsoever, shall be levied by the Jodhpoor Government, or shall by it be permitted to be levied by any other person, on any salt manufactured or sold by the British Government within the said limits, or while in transit through the Jodhpoor territory, and covered by a British pass, *en route* to any place outside the Jodhpoor territory.

ARTICLE X.

Nothing in this Agreement shall be held to bar the sovereign jurisdiction of the Jodhpoor Government, within the aforesaid limits, in all matters, civil and criminal, not connected with the manufacture, sale, or removal of salt, or the prevention of unlicensed manufacture or smuggling.

ARTICLE XI.

The Government of Jodhpoor shall be relieved of all expenses whatsoever connected with the manufacture, sale, and removal of salt, and the prevention of unlicensed manufacture or smuggling within the limits aforesaid; and in consideration of the lease granted to it, the British Government agrees to pay to the Jodhpoor Government, in two half-yearly instalments, an annual rent of one hundred and twenty-five thousand (125,000) Rupees, British Currency, on account of the share of the Jodhpoor Government in the salt sold within the said limits, and the total sum of such annual rent, amounting to one hundred and twenty-five thousand (125,000) Rupees, British Currency, shall be paid without reference to the quantity of salt actually sold in, or exported from, the said limits.

ARTICLE XII.

If the amount of salt sold in, or exported from, the said limits by the British Government in any year shall exceed eight hundred and twenty-five thousand (825,000) British Indian maunds, the British Government shall pay to the Government of Jodhpoor on all such excess (subsequent to the exhaustion of the stock referred to in Article VIII) a royalty at the rate of 20 per cent. on the price per maund, which shall have been fixed as the selling price under the first clause of Article VII. In the event of any doubts arising as to the amount of salt on which royalty is claimable in any year, the accounts rendered by the principal British Officer in charge at Sambhur shall be deemed conclusive evidence of the amounts actually sold or exported by the British Government within the periods to which they refer; provided that the Jodhpoor Government shall not be debarred from deputing one of its own Officers to keep a record of sales for its own satisfaction.

ARTICLE XIII.

The British Government agrees to deliver annually seven thousand (7,000) British Indian maunds of good salt, free of all charges, for the use of the Jodhpoor Durbar; such salt to be delivered at the place of manufacture to any Officer empowered by the Jodhpoor Government to receive it.

ARTICLE XIV.

The British Government shall have no claim on the land or other revenue, unconnected with salt, payable from the town of Sambhur or other villages or lands included within the limits aforesaid.

ARTICLE XV.

The British Government shall not sell any salt within the Jodhpoor territory outside the limits of such jurisdiction as may be assigned to it by this or any other agreement.

ARTICLE XVI.

If any person employed by the British Government within the said limits shall have absconded after committing an offence, or if any person shall have absconded after committing a breach of the rules laid down under Article III, the Jodhpoor Government shall, on sufficient evidence of his criminality, make every effort to cause his arrest and surrender to the British authorities within the said limits, in case of his passing through, or taking refuge in, any part of the Jodhpoor territories.

ARTICLE XVII.

None of the conditions of this Agreement shall have effect until the British Government shall actually assume charge of the manufacture of salt within the said limits. The British Government may determine the date of so assuming charge, provided that if such charge be not assumed on or before the 1st May 1871, the conditions of this Agreement shall be null and void.

ARTICLE XVIII.

None of the conditions contained in this Agreement shall be in any way set aside or modified without the previous consent of both Governments, and should either party fail or neglect to adhere to these conditions, the other party shall cease to be bound by this Agreement.

Signed, Sealed, and Exchanged at Jodhpoor this twenty-seventh day of January A. D. eighteen hundred and seventy, corresponding to the eleventh day of Malha Bud Sumvut nineteen hundred and twenty-six.

J. C. BROOKE, *Colonel,*
Offg. Political Agent, Marwar.

(Sd.) JOSHEE HUNSRAJ.

(Sd.) MAYO.

This Treaty was ratified by His Excellency the Viceroy and Governor General of India, at Fort William, on the fifteenth of February 1870.

(Sd.) C. T. AITCHISON,
Offg. Secy. to the Govt. of India.

**Treaty between the British Government and the Maharaja of Jodhpooe
regarding the lease of the joint property in salt on the
Sambhur Lake.**

Treaty between the British Government and His Highness TUKHT SINGH, C. C. S. I., Maharaja of Jodhpooe, his heirs and successors, executed on the one part by Colonel JOHN CHEAP BROOKE, Officiating Political Agent at the Court of Jodhpooe, under authority from Lieutenant-Colonel RICHARD HARTE KEATINGE, C. S. I. and V. C., Agent to the Governor General for the States of Rajpootana, in virtue of the full powers vested in him by His Excellency the Right Hon'ble RICHARD SOUTHWELL BOUCHE, EARL OF MAYO, VISCOUNT MAYO OF MONYCROWER, BARON NAAS OF NAAS, K. P., G. M. S. I., P. C., &c., &c., Viceroy and Governor General of India, and on the other part by JOSHEE HUNSRAS, Monsalib of Marwar, in virtue of the full powers conferred on him by Maharaja Tukht Singh aforesaid.

ARTICLE I.

Subject to the conditions contained in the following Agreement, the Government of Jodhpooe will lease to the British Government its right of manufacturing and of selling salt within the limits of the territory bordering on the Sambhur Lake, as hereinafter defined in Article IV, and of levying duties on salt produced within such limits.

ARTICLE II.

This lease shall continue in force until such time as the British Government desires to relinquish it, provided that the British Government shall give notice to the Government of Jodhpooe of its intention to terminate the arrangement two full years previous to the date on which it desires the lease to cease.

ARTICLE III.

To enable the British Government to carry on the manufacture and sale of salt at the Sambhur Lake, the Jodhpooe Government shall empower the British Government, and all Officers appointed by the British Government for such purposes, to enter and search, in case of suspicion, houses and all other places enclosed or otherwise, within the limits hereafter defined, and to arrest and punish with fine, imprisonment, confiscation of goods or otherwise, any and all persons detected within such limits in the violation of any of the rules or regulations which may be laid down by the British Government in regard to the manufacture, sale, or removal of salt, or the prevention of unlicensed manufacture or smuggling.

ARTICLE IV.

A strip of territory, bordering the shores of the lake throughout within the separate jurisdiction of Jodhpooe, including Nawa, Goodha, and other villages and hamlets, and averaging two (2) miles in width, measured from the high water limits of the lake, shall be demarcated, and the whole space enclosed by such line of demarcation, as well as such portions of the lake itself, or of its dry bed, as are now under the exclusive and separate jurisdiction of Jodhpore, shall be held to constitute the limits within which the British Government and its Officers are authorized to exercise the jurisdiction referred to in Article III.

ARTICLE V.

Within the said limits, and so far as such measures may be necessary for the protection or furtherance of the manufacture, sale, or removal of salt, the prevention of smuggling, and the enforcement of the rules laid down in accordance with Article

III of this Agreement, the British Government, or the Officers by it empowered, shall be authorized to occupy land for building or other purposes, to construct roads, erect barriers, hedges, or buildings, and to remove buildings or other property.

If any land paying land revenue to the Government of Jodhpur be occupied under the authority of the British Government for any of the purposes aforesaid, the British Government shall pay to the Government of Jodhpur an annual rent equal to the amount of such revenue. In every case in which anything involving injury to private property shall be done by the British Government or its Officers under this Article, one month's previous notice shall be given to the Government of Jodhpur, and in all such cases proper compensation shall be paid by the British Government on account of such injury. In case of difference between the British Government or its Officers and the owner of such property as to the amount of the compensation, such amount shall be determined by arbitration. The erection of any buildings within the said limits shall not confer on the British Government any proprietary right in the land, which, on the termination of the lease, shall revert to the Government of Jodhpur, with all buildings or materials left thereon by the British Government. No temples or places of religious worship shall be interfered with.

ARTICLE VI.

Under the authority of the Jodhpur Government, the British Government shall constitute a Court, presided over by a competent Officer, for the trial and punishment, on conviction, of all persons charged with violations of the rules and regulations referred to in Article III, or offenders connected therewith; and the British Government is authorized to cause the confinement of any such offenders sentenced to imprisonment, within the aforesaid limits or elsewhere, as may seem to it most fitting.

ARTICLE VII.

From and after the date of the commencement of the lease, the British Government will, from time to time, fix the price at which salt manufactured within the said limits shall be offered for sale.

ARTICLE VIII.

The whole of the stocks of salt existing within the aforesaid limits, at the commencement of the lease, shall be transferred by the Jodhpur Government to the British Government on the following terms:—The Government of Jodhpur will transfer six hundred thousand (600,000) British Indian maunds of salt to the British Government, as stock with which to commence operations free of cost. The price to be paid to the Jodhpur Government for the remainder of the said stock shall be reckoned at six and a half annas ($6\frac{1}{2}$) per British Indian maund, and payment shall be made at this rate by the British Government to the Government of Jodhpur; provided that the said payment of six and a half annas ($6\frac{1}{2}$) per maund to the Government of Jodhpur shall only commence when salt in excess of nine hundred thousand (900,000) British Indian maunds is sold or exported by the British Government in any year, and until the aggregate of such yearly excess amounts to the full quantity of the stock of salt transferred, over and above the said six hundred thousand (600,000) British maunds, the British Government shall not pay the royalty of forty (40) per cent. on the sale price of such excess as provided in Article XII.

ARTICLE IX.

No tax, toll, transit duty, or due of any kind whatsoever, shall be levied by the Jodhpoor Government, or shall by it be permitted to be levied by any other person, on any salt manufactured or sold by the British Government within the said limits, or while in transit through the Jodhpoor territory, and covered by a British pass *en route* to any place outside the Jodhpoor territory; provided that on all salt sold for consumption within the territory of Jodhpoor, the Government of that State will be at liberty to levy whatever tax it may please.

ARTICLE X.

Nothing in this Agreement shall be held to bar the sovereign jurisdiction of the Jodhpoor Government within the aforesaid limits in all matters, civil and criminal, not connected with the manufacture, sale, or removal of salt, or the prevention of unlicensed manufacture or smuggling.

ARTICLE XI.

The Government of Jodhpoor shall be relieved of all expenses whatsoever connected with the manufacture, sale, and removal of salt, and the prevention of unlicensed manufacture or smuggling within the limits aforesaid, and in consideration of the lease and other immunities hereby granted to it, the British Government agrees to pay to the Jodhpoor Government, in two half-yearly instalments, an annual rent of three lakhs (3,00,000) of Rupees, British currency, and the total sum of such annual rent, amounting to three lakhs (3,00,000) of Rupees, British currency, shall be paid without reference to the quantity of salt actually sold in, or exported from, the said limits. The above sum of three lakhs (3,00,000) of Rupees shall include all rights of bhoom, transit dues, and hukks of every kind due to the Thakoor of Koochawun and others which the Jodhpoor Government agrees to satisfy.

ARTICLE XII.

If the amount of salt sold in, or exported from, the said limits by the British Government in any year shall exceed nine hundred thousand (900,000) British Indian maunds, the British Government shall pay to the Government of Jodhpoor on all such excess (subsequent to the exhaustion of the stock referred to in Article VIII) a royalty at the rate of forty (40) per cent. on the price per maund, which shall have been fixed as the selling price under Article VII. In the event of any doubts arising as to the amount of salt on which royalty is claimable in any year, the accounts rendered by the principal British Officer in charge at Sambhur shall be deemed conclusive evidence of the amounts actually sold or exported by the British Government within the periods to which they refer, provided that the Jodhpoor Government shall not be debarred from deputing one of its own Officers to keep a record of sales for its own satisfaction.

ARTICLE XIII.

The British Government agrees to deliver annually seven thousand (7,000) British Indian maunds of good salt, free of all charges, for the use of the Jodhpoor Durbar; such salt to be delivered at the place of manufacture to any Officer empowered by the Jodhpoor Government to receive it.

ARTICLE XIV.

The British Government shall have no claim on the land or other revenue, unconnected with salt, payable from the townships of Nawa, Goodha, or other villages or lands included within the limits aforesaid.

ARTICLE XV.

The British Government shall not sell any salt within the Jodhpur territory outside the limits of such jurisdiction as may be assigned to it by this or any other Agreement.

ARTICLE XVI.

If any person employed by the British Government within the said limits shall have absconded after committing an offence, or if any person shall have absconded after committing a breach of the rules laid down under Article III, the Jodhpur Government shall, on sufficient evidence of his criminality, make every effort to cause his arrest and surrender to the British authorities within the said limits, in case of his passing through, or taking refuge in, any part of the Jodhpur territories.

ARTICLE XVII.

None of the conditions of this Agreement shall have effect until the British Government shall actually assume charge of the manufacture of salt within the said limits. The British Government may determine the date of so assuming charge, provided that if such charge be not assumed on or before the 1st May 1871, the conditions of this Agreement shall be null and void.

ARTICLE XVIII.

None of the conditions contained in this Agreement shall in any way be set aside or modified without the previous consent of both Governments; and should either party fail or neglect to adhere to these conditions, the other party shall cease to be bound by this Agreement.

Signed at Jodhpur on the eighteenth day of April A. D. one thousand eight hundred and seventy.



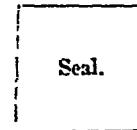
(Sd.) J. C. BROOKE, *Colonel,
Offg. Political Agent.*

Seal of State of Jodhpur.



(Sd.) JOSHEE HUNSRAJ.

Seal.



(Sd.) MAYO.

Seal.

This Treaty was ratified by His Excellency the Viceroy and Governor General of India, at Simla, on the 26th July 1870.

(Sd.) C. U. AITCHISON,
Offg. Secy. to the Govt. of India, Foreign Dept.

NOTIFICATION—By the Foreign Department,—dated, Fort William, the 18th March 1870.

No. 505 P.—In supersession of Notification No. 300 P, dated 17th February, regarding the Sambhur Lake Court, the following revised Notification is published for general information:—

Whereas by a Treaty, dated the 7th day of August 1869, and made between the British Government and His Highness the Maharaja of Jeypoor, and by a Treaty, dated the 22nd day of November 1869, and made between the British Government and His Highness the Maharaja of Jodhpoor, to enable the British Government to carry on the manufacture and sale of salt at the Sambhur Lake, it was (amongst other things) agreed that the Governments of Jeypoor and Jodhpoor should empower the British Government and all Officers appointed by the British Government in this behalf to enter and search, in case of suspicion, houses and all other places, enclosed or otherwise, within the limits hereinafter defined, and to arrest and punish with fine, imprisonment, confiscation of goods, or otherwise, all persons detected within such limits in the violation of any of the rules which may be laid down by the British Government in regard to the manufacture, sale, or removal of salt, or the prevention of unlicensed manufacture or smuggling; and that under the authority of the said Governments of Jeypoor and Jodhpoor, the British Government should constitute a Court presided over by a competent Officer, who should usually hold his sittings within the above-mentioned limits, for the trial and punishment, on conviction, of all persons charged with violations of the said rules and regulations, or with offences connected therewith; and the British Government was also authorized to cause the confinement of any such offenders sentenced to imprisonment either within the aforesaid limits or within its own territories, as might seem to it most fitting:

In pursuance of the provisions hereinbefore cited, and under the authority aforesaid, the Viceroy and Governor General of India in Council hereby declares—

1stly.—A Court to be called the “Sambhur Lake Court” is hereby established.

2ndly.—The local limits of the jurisdiction of such Court shall be the strip of territory bordering on the shores of the Sambhur Lake, including the town of Sambhur and twelve other hamlets, and comprising the whole of the territory now subject to the joint jurisdiction of the States of Jeypoor and Jodhpoor, and which shall be demarcated under the said Treaties.

3rdly.—The Assistant Commissioner for the time being in charge of the British Inland Customs Department at the Sambhur Lake shall be the Judge of such Court. He shall have the powers of a Subordinate Magistrate of the 1st Class, as described in Section 22 of the Code of Criminal Procedure, and he shall have, according to such powers, jurisdiction (A) in respect of the offences described in Section 21 of the said Code when committed by subjects of Her Majesty within the aforesaid limits, and (B) in respect of breaches of the rules described in Article III of the said Treaties or offences connected therewith, when committed by any person whatsoever within the aforesaid limits.

THE SAMBHUR LAKE.

4thly.—In the investigation and trial of such offences and breaches of rules, and in the levy of fines therefor, he shall be guided by the provisions of the Code of Criminal Procedure.

5thly.—In all cases in which salt shall be manufactured, carried, or stored within the said limits in contravention of the rules for the time being in force for the regulation of such manufacture, carriage, or storage, the said Court is empowered, in addition to any other penalty which it is authorized to inflict, to declare the said salt confiscated, and dispose of it according to the rules for the time being in force in the Department of Indian Customs.

6thly.—For the purpose of trying offences described in Section 21 of the Criminal Procedure Code, when committed by subjects of Her Majesty within the limits of the jurisdiction of the Sambhur Lake Court, the aforesaid limits shall be deemed to be a division of a district subordinate to the Deputy Commissioner of Ajmere, and any subject of Her Majesty convicted on a trial held by the Sambhur Lake Court of any of the offences described in Section 21 of the Code of Criminal Procedure, may appeal to the Deputy Commissioner of Ajmere, who shall in the disposal of such appeals be guided by the said Code.

7thly.—Any person convicted on a trial held by the Sambhur Lake Court of a breach of the rules described in Article III of the said Treaties, or offences connected therewith, and any person aggrieved by proceedings held under these rules, may petition the Agent to the Governor General for the States of Rajpootana, who, if he see fit, may send for the record of the case, and may confirm, reverse, or modify the sentence, or pass any other orders not inconsistent with the rules.

C. U. AITCHISON,
Offg. Secy. to the Govt. of India.

Appendix C.

Oudh and Jounpore Local Salt Works.

MALLOWNA SALT WORKS.

Site of works.

1. The newly-established salt works, known by the above name, are situated in Pergunnah Behar, of the Oonao District, on lands belonging to the villages detailed below,* covering a space of about $1\frac{1}{4}$ square miles.

How enclosed.

2. They are surrounded by a boundary wall from eight to ten feet in height, and about six miles in circuit, constructed at the expense of Government. On its northern, eastern, and western faces, this wall is fairly regular in outline; but, owing to the configuration of the ground where the bank of the river Lonee is skirted, its southern face prevents a less regular appearance. At worst, however, its configuration lends itself to easy supervision by preventive posts, placed at such distances as not to entail a very heavy expenditure on the force by which these latter are manned.

Villages enclosed.

3. Within this wall are enclosed the villages named at foot,† inhabited principally by Noonecahs and Lodhs, and containing altogether 306 houses. Of these 306, the occupants of 30 have been ousted as in nowise connected with manufacture of salt, receiving through the district authorities compensation in proportion to their individual claims; while the remaining 276, under relaxations of the original departmental scheme, which have appeared at the outset imperative, are occupied by people for the most part directly (as owners of, or laborers in, works), but in a few minor instances indirectly (as village servants, *i. e.*, priests, artizans,‡ &c., by the services rendered to the actual workers) connected with the processes carried on within the walls.

Persons allowed to remain.

4. Immediately outside the enclosure lie the villages or hamlets of Pursura, west; Jewrakhun Khera, north-west; Nibiya, north; Mullowna, north-east; Bulsingh Khera, east; Bhugwantpoor, east; Jeeakhera, east by south; and Pooreye, south-east, Doomuneekhera, south-west.

Gates and wickets.

5. For purposes of entrance and exit, there are three large gates, *viz.*, one on the western face near Pursura, one on the northern near Nibiya, and a third on the eastern side near Bulsingh Khera. § Of the three wickets, one is on the western face, at a short distance south of the main gate; one on the northern side, west of the main gate, and the third is near the south-eastern angle of the enclosure not far from the village of Jeeakhera, and constitutes the solitary outlet along the whole southern face of the wall. These wickets, which have strong doors and locks,

* Pursura, Poorandoorpoor, Malowna, Bhugwantpoor, Pooni, and Daints.

† Shahibunge, Maharajpoor, Daints, Beaspoor, Busunt Khera, Dewan Khera, Moodoo Khera, Chupkala, Purwapor, Goolureet, Narrainpoor, Oonchwa.

‡ Blacksmiths, carpenters, chumars, barbers, &c.

§ All three gates serve for entrance of work-people, carts, pack-animals, or porters, laden or unladen, but exit by the northern gate is barred to all laden carriage, which must be taken out, under escort, by the western or eastern gates, whether the load be salt or merely farm produce; exit of unladen carts, animals, porters, and of work-people is permitted at all gates, and throughout the hours of the day. The gates open at day-light, and close at dark. A guard is stationed at each, consisting of one eunadar and four men.

and at each of which a guard is maintained, have their separate uses. Thus, the first above-named, *i.e.*, near the western gate, is intended solely for the private use of the officer in charge, in view to himself or his most trusted subordinates being at any time able to pass unnoticed out of the enclosure. It is closed to the public. The remaining two wickets, opened between stated hours, serve for passage to and fro of people engaged on the works and of their cattle. Each is rigorously closed during the night, and all keys, whether of gates or wickets, are deposited with the Patrol.*

6. Before quitting the subject of the wall,† it must needs be noted that a radical error of construction has occurred in raising the superstructure on the very edge of the ditch dug for extraction of material. This has already led to the collapse of considerable sections, and will, it is much to be feared, aid in bringing down more, should heavy rain be frequent. There is a set of drainage water against the north-eastern wall, which has already done much damage, and against which strenuous efforts, in the way of inducing the water to take to a natural outlet by a nullah which runs in a south-westerly direction from the Busing Khera Gate through the centre of the enclosure and falls into the Lonee, are now being directed.

7. Preventive posts of four men, with a jemadar to every two posts, are placed outside the wall, and a raised *maichan* between each post affords a perfect view over the interior of the works, &c.

8. The area so enclosed is roughly divided into clusters of works locally termed "Dowana." There are twelve of these, the names of which follow in the order, according to common report, of the quality of the salt produced in each:—

1.—Kurumtulleea.‡	7.—Narepar.
2.—Sahibunge.	8.—Chupkala.
3.—Puchbheetta.	9.—Goolureea.
4.—Bhooreehar.	10.—Narrainpoor.
5.—Jeeakherna.	11.—Oonchwa.
6.—Beenspoor.	12.—Purwapoort.§

Mistake in construction of wall.

Interior area: its sub-division into clusters of works.

Order of clusters in respect to quality of produce.

9. These twelve Dowanas, up to the 30th of June 1870, contained 284 works, on which were 343 wells, 403 *patas*, or evaporation pans, 1,343 filters, the whole providing employment for 3,364 people and 721 cattle.

10. About one-third of the available area is already occupied, leaving two-thirds available for extensions and additions of factories.—(*Pide Annexure A.*)

11. The owners of these works are mostly Looneeahs (or *Nooneeals*) and Lodhs in nearly equal numbers. A few Rajpoots, a still smaller number of Brahmins and Kayaths, with here and there an Aheer or a Koomar, have shared in the venture.

* It may be remarked that no provision exists in the departmental rules for more than one gate, or for any wickets, but the Assistant Commissioner explains that modifications were forced upon him by circumstances. The question, how far our rules as first devised could have been applied in their rigor, will be taken up as this Note proceeds.

† It must not be overlooked that the obligatory building of this wall in the hot weather was most adverse to durability.

‡ Mr. Hay thinks Sahibunge entitled to precedence, but the popular voice places Kurumtulleea at the head of the list.

§ Nos. 1, 2, 3, 4, 6, 7 are worked by Lodhs only. Nos. 8, 9, 10 and 12 by *Nooneeals* only. No. 5, by *Nooneeals* and Lodhs. No. 11 by divers castes in which *Nooneeals* predominate.—(Mr. Hay.)

Process by which salt is made.

Brief sketch.

Wells how dug.

Peculiarities.

Kinds of wells.

Quality of salt produced.

12. The process by which salt is made is known as the "Seenchan," or irrigation method, and may, in its principal features, be described in very few words. Brine is drawn from wells dug for the purpose, is then liberally sprinkled mostly on mounds of earth, also raised by turning out the contents of filters.—(Mr. Hay). After the lapse of a period which varies with the season,* the surface of these mounds is scraped off and transferred to rude filters, in which it is lixiviated with fresh brine, the filtrate being then exposed in shallow pans of masonry to solar heat until salt forms. It is unnecessary to enter into minor details, all such being already recorded. The result of the first sprinkling of brine, which, at first sight, looks so like a waste of labor, is shown by analysis to be retention by the soil of the considerable proportion of sulphates which the first crude brine contains,† and which is found to be very materially less in the secondary solution obtained by filtration. The *rationale* of this would seem to be that the sprinkling and its consequences constitute, in fact, an evaporation at a low temperature, during which the relative solubilities of the substances implicated being brought into action, the less soluble are first deposited in more or less solid form, while the more highly soluble particles are retained in suspension by the moisture still lingering in the heated soil.

13. Wells are dug under conditions which deserve special notice. The first thing which strikes a new comer is the curious fashion in which the wells are arranged in rows, and so closely packed as irresistibly to suggest the likelihood of subsidence of one into another, which mishap, as a matter of fact, does frequently mar all the first labor of their owners. The risk is well understood, and deliberately incurred, the object being to set up a system of mutual drainage which shall subdivide, and thus lessen to each the flow of sweet water which is always encountered in the upper strata which the shafts have to pierce. It is stated that no single well (by which must, of course, be understood such wells as the means of the classes employed would enable them to dig, or such as the profits of their trade would bear) could be sunk without being so swamped with sweet water as to be useless for salt-making.

14. The wells in use are of the kind known as *kucha*, and to prevent, as far as may be, at a cheap rate, cutting of sides and subsidence of the upper strata of lighter soils, they are lined with twisted twigs (this lining being called *beenr*).‡ In the former and their long-established works, a more durable wooden lining (*kutkuwár*) was used in the more southerly clusters,§ where a very sandy soil made them indispensable. The depth required to strike weak brine is about 33 feet, and for stronger brine about 85 feet.

15. The salt produced is small grained, opaque, but very fairly white and clean. It has enjoyed, under the name of Bainswara salt, a high reputation, and the memory of its excellence

* In favorable weather, a perfectly new mound is said to be ready for scraping on the third day after sprinkling has begun. Each factory has several of these irrigation mounds, and sprinkling and scraping goes on in regular routine, without much reference to relative ripeness of soil.—(Mr. Hay).

† Mr. Hay holds that this impurity of the primary brine is due to comparative shallowness of the wells, and that by sinking shafts to greater depths, a much purer brine would be obtained. If this opinion be sound, by such a reform, unless indeed the cost of sinking and of maintaining the deeper well, were such as to exceed that of the present preliminary watering of the soil, including raising of mounds, &c., it is evident that the existing process would be thereby simplified and cheapened.

‡ A carefully compiled glossary of all Vernacular technicalities has been ordered.

§ Mr. Hay.

(apparently imaginary, for, although superior to our Salumbha, it has not as yet equalled what we can make at Sooltanpore) is still cherished by the people of Oudh. One of the existing clusters, Kurumtullea, is said to have monopolized the supply of the King's household, and wealthy Native gentlemen of the neighbourhood have asserted to the present writer their preference of the local produce, even to Sambhur, the salt, *par excellence*, of the Native gentry of the north-west.

16. The works are managed on a system closely allied to that of those co-operative trading societies from which large results appear probable in Europe. The workers are divided into two classes,—“Kisan” or “Kâshikâr,” who are the capitalists of the venture, and “Bhutteya” or co-operatives. The Kisan provides all the plant, and, as the season goes on, advances, from time to time, coin or kind for the support of his Bhutteyas—the arrangement being that the produce shall be divided into two equal portions,—one of which shall belong to the former, the other to the latter. It will, of course, frequently happen that the produce is not all sold by the time when the Bhutteyas disperse for their monsoon field operations. This is the Kisan's opportunity: he is at once banker and account-keeper to the association; he knows what he has advanced or chooses to declare himself to have advanced to his partners, and it rests with him to acknowledge as much, or as little, as he chooses of subsequent profits. This is the system, a legacy of the time when salt works were plentiful and prosperous in Oudh, which has now to be exposed to a strain such as it has not before borne, and the effect of which has yet to be tested. Before annexation, and even for some time after the disorders of 1857 and 1858 had subsided, matters were far otherwise than now with Nooneehs and Lodhs (the principal salt-makers) in Oudh. If not, *de jure*, *adscripti glebae*, they were, by tradition and by contraction of opportunity, strongly tied down to the soil on which they were born. They were “Kumenna,” *vilains*, for whom humble avocations, beyond which they must not aspire, were prescribed—their boldest effort at seeking occupation afar was bounded by the temporary migration of a few bands varying in strength up to actually considerable numbers, to dig a tank for some wealthy zemindar, or to assist in opening a new line of road. By the setting in of the rains, most of these would, however, have returned to their villages with an eye to field work. Thus, there was no permanent drain on these classes; no sensible relief to any local surplus of population. The enormous and still increasing drafts on the agricultural resources of the Province resulting from the ever-extending communications of the present time, which are known to be daily adding to the cultivated area, and, as a necessary consequence, to furnish more and more employment for labourers, were unknown in a land where roads were still few and bad: there was little choice of employment, and, more especially to those who stayed at home, the hereditary avocation was the stand-by. Thus, even under pressure of a debt to their capitalist partner, enduring from year to year, there would be little to wonder at if the Bhutteyas were found year by year returning to an occupation which at least fed them for many months. But it is not even certain that their case was always as bad as eternal indebtedness would imply. Local traditions are of course to be received with caution, but these represent the condition of salt-workers, in pre-annexation days, as one of marked prosperity; while by common consent of various informants, personally questioned, the average selling

Management of works.

Master-makers.

Co-operatives or
Bhutteyas.The above system now to
be exposed to a severe test.Former condition of
salt-making castes.

Former price of
locally-made salt.

Cost of living much less
than now.

Influence of imported salts.

Recent changes in condition
of salt-making classes,
openings in agriculture,
public works, &c.

rate, *viz.*, 24 seers of 99 tolahs, equal, in round numbers, to 28½ of our weight, was higher than what they can now calculate on obtaining. There was no competition, and the producers commanded their own prices. Prices of grain which so largely influence the price of other necessaries, were much lower than now; so that while the salt-maker in all likelihood earned more than he can now, he very certainly spent less. At present the very development of communications which, by drawing away enormous quantities of grain, has, despite all extensions of cultivation, so largely increased the cost of living, brings on its reflux very large supplies of salts, most of them quite equal to, some superior to, any thing which can be locally made, and at prices which now tending constantly to decrease,* necessarily lessen the margin for profit on local manufacture, which pays not only the same duty as the imported kinds, but additional cesses which go to neutralize the cost of carriage to the latter. Suppose the maker of the present day to obtain the same price as of old, say, in round numbers, Rs. 1-7† per maund (and no indication is as yet visible that the trade is inclined to pay so much as a rule), his profit would, as a mere matter of figures, be large; but it would by no means be the profit of the pre-annexation time, when, as already noted, quite as much money came into his hands as now and much less went out. This being, it has yet to be seen if the manufacture will attract labor as of yore, now that such multiplied channels are ready to draw off any surplus of population. There is agriculture,‡ congenial and profitable; there are public works of all kinds calling for spade labor, not in any way distasteful to the classes concerned, and also highly remunerative. Contract work of this kind is known to pay largely, and it is matter of gossip in the neighbourhood of these very works that, at such labor, a family can earn from Rs. 1-4 to Rs. 1-8 per diem; and with rumours of this nature afloat, the Bhutteyas who after all are the mainspring of the work (any man may put *money* into the venture, but only certain castes will, to any practical purpose, give their *labor*), may think twice before returning to an occupation, which, in the present instance, has so far barely kept them alive, and has, it may be said with confidence, left them without exception in debt to their Kisan, who is but little likely to have the foresight to appreciate the advantage of making such a burden lie as lightly as possible. These considerations will show what was meant by saying that the Bhutteya system was about to be exposed to a strain hitherto unknown.—(Vide also paragraph 41.)

Day labor little used in
salt works.

Mr. Hay's experimental
works.

17. Day labor is not in favor with owners of salt works. The Bhutteya, when he can be got, works for his own hand, and grudges not his labor; the day laborer's aim is to make the best of his bargain, *i. e.*, to give as little as he decently can in return for his day's hire.

18. The object of this paper being to travel as little as possible over trodden ground, notice of processes has been condensed as much as was consistent with any allusion to them; but it will be advisable to devote some space to description of the experimental works devised by Mr. Hay, and now in an advanced stage of preparation.

* In Allahabad, Bismulla salt now sells, under a duty fifty per cent. higher than at present the same rates as in 1853.

† Atma 12 and pie 6 has been the average.

‡ There is some slight conflict of opinion as to whether the salt-making classes have taken to agriculture. Thus, Mr. Capper, a high authority, thinks that they have not, but the Civil Commissioner and Financial Commissioner, with every District Officer and landholder to whom I have spoken since I came into Oudh on my present mission, hold that they have.

19. Mr. Hay's object has been twofold, *viz.*, to test the cost of production by the common Native process, and to introduce improvements calculated to lessen labor and raise the quality of produce. He has laid out four series of works, the first of which is in all respects but one identical with those set up by the Natives, the exception being that to save expense, he contemplates utilizing his better-constructed evaporation pans for the final reduction of brine, allowing by calculation for their greater capacity. This set may, therefore, be dismissed without further notice.

First set of works.

20. In the second set Mr. Hay proposes to work what he terms an improved Native process, or to test the scheme to which he has, without effect, invited attention of present workers. The main feature in this scheme is the leading the brine from the well-head by a considerably lengthened aqueduct, to the sprinkling ground, whereby he looks to obtaining, without material loss of volume, such concentration of the primary brine as shall add largely to the yield from equal spaces of sprinkled ground. In all other particulars he will, in this set also, adhere to the Native method, with the exception noted in the preceding paragraph.*

Second set.

21. In the third set a kind of graduation process is contemplated, which will best be described by beginning at the point furthest from the well-head. Here then Mr. Hay has constructed a vat, fifty feet long by nineteen broad, adjoining one of his evaporation pans. On the side nearest to the pan, and for some distance overlapping each of its angles, the soil has been excavated to a depth of seven feet, and the space filled with a kind of concrete, well rammed, to prevent percolation. The vat itself has been filled to within fourteen inches of its brim with well salinated earth. A raised aqueduct will run from this vat up to the well-head, *but will not be directly connected with the well*. Along this aqueduct is fixed, at intervals of about 20 feet, a line of tall posts, in which, at about 10 feet above the level of the duct, are fixed cross bars destined to support wooden troughs perforated with holes. The uprights, moreover, will serve to prop a line of tatties made of wicker and grass, the bases of which will rest in the duct; well brine being supplied to the troughs, to which a moderate ineline will be given, the theory is that the brine, escaping through the holes, will trickle down through the substance of the tatties, which are to be so placed as to catch the prevalent wind, when, by reason of the greatly increased surface of liquid exposed to atmospheric action, a rapid concentration will ensue. Reaching the aqueduct, the brine will flow into the earth vat above described, where it will soak until, in the opinion of the operator, a sufficient degree of concentration is attained, when, by withdrawal of a plug, the brine, roughly filtered through grass at the inlet of the draining channel, will be drawn off into the system of sediment and evaporation pans presently to be described. This is identical in principle so far as the troughs and tatties are concerned, with the process followed in Germany for concentration of weak brines.†

Third set.

* This plan of conducting the brine over a long channel is challenged by Native makers, who assert that the produce, for equal outlay, diminishes in proportion as the distance from the well-head increases; in other words, that increases of distance implies waste of liquid and waste of power at the well-head. This objection, already raised by Mr. Braddon, is consonant with my own prejudice, but experiment alone can fairly decide a moot point of the kind; and improvement of process being a great *desideratum*, some little venture may be warranted.

† *Vide* Ure's Dictionary of Arts, Manufactures and Mines, article *Salt*, page 625 of Volume III. Dr. Warth, our chief analyst, himself a German and familiar with the process, has more than once, even since visiting Mallowna, expressed to me his doubts of the adaptability of the German method to the climate of India.

Fourth set.

22. The salient feature of the fourth set is a series of three mounds of earth of the following dimensions, etc. :—

	Height. feet.	Length. feet.	Width of slope, feet.
No. 1	8 $\frac{1}{2}$	178	12*
No. 2	12 $\frac{1}{2}$	126	17
No. 3	10 $\frac{1}{2}$	234	87

Variations in length.

On its western face each mound is perpendicular, on its eastern each slopes rapidly to the ground. When ready for work, each will have its slope furrowed with parallel longitudinal channels at 18 inches apart from each other. Another series of uprights, supporting wooden troughs, will conduct well brine into the uppermost channel on each slope. As the channel fills, the brine will run over and thereafter, trickling from channel to channel, will be received by an aqueduct at the base, and thence conducted into the sediment and evaporation pans. Mr. Hay's theory, as to the action of these mounds, is two-fold. In the first place, the passage of the brine from channel to channel and over all the surface of the slope is looked to to effect the desired concentration of brine. In the second, Mr. Hay assumes that the exposure which he has given to the perpendicular faces of his mounds, which stand, it may be noted, in very imperfect echelon, will induce in the mass magnetic currents, which, decomposing the foreign salts in the former, will, by percolation and subsequent capillary attraction to the surface, add to the yield of salt. §

Evaporation pans, &c.

23. Mr. Hay's evaporation system remains to be described.

24. He has laid down two sediment pans, 30' x 37' x 16', the purpose of which is to allow settlement of all insoluble matter held in suspension. This will unquestionably contribute to cleanliness of produce, for where a layer of sediment underlies the salt, it is impossible to keep the latter free of contamination during withdrawal. Supplementary to these, and drawing from them their supplies of clarified brine, there are three evaporation pans of the following dimensions :—

No. 1 and 2, 7 $\frac{1}{2}$ ' x 51' x 14'
No. 3, 16' x 55' x 12'

These are sub-divided into sections, and differ from Native pans only by the solidity of their construction, their greater depth, and the superiority of the plaster with which they are faced.

Deep vat.

25. Lastly, there is a deep vat 49' x 24' x 3' built of burnt brick, faced with lime cement, in which Mr. Hay proposes to allow a large quantity of concentrated brine to evaporate slowly, in hope of obtaining, with aid of thorn bushes or other artificial supports, a larger grained (as more perfectly crystallized) and a purer salt than can be made in a more shallow area.

Number of filters.

26. In addition to the foregoing, there are 33 filters on the Native model, with their proper number of reservoirs, and large supplies of prepared earth.

*The first of these slopes is manifestly too short to be of much use, in view of construction admitted by Mr. Hay.

† These variations in length are intended to attract the prevalent wind along the faces of the mounds.

‡ A more perfect echelonment of the walls would have aided the action of the wind. As it is, one wall greatly masks another.

§ Much reliance cannot, it seems to me, be placed on this latter theory. The proportion of foreign chlorides in the soil of these localities is believed to be small, and no magnetic or other action can evolve from a mass as *elementary* substance, such as chlorine, not originally there latent. The prevalent foreign salts seem to be sulphates, but in absence of plenteous chlorides, whence is magnetism or what else to educe supplementary chloride of sodium?

27. Well-brine for all these works is supplied by four wells. Supply of brine.
 Mr. Hay proposes to raise water for his two graduation works by means of a drum, arranged so as to work an ascending and descending rope, each carrying a self-emptying water bag, and to drive the drum by means of bullock-power, applied by a long lever to cogged multiplying wheels,* made at the outset of wood only, but which, if successful, he would supplement with iron.

28. Troughs, some wood lining for wells, and the drum are Woodwork now ready. on the ground, the cogged wheels remain to be made.

29. The cost of all these constructions has amounted to Cost of the works. Rs. 1,197-12; and looking to the amount of works of all kinds, to the apparent solidity of masonry, and to the fact that Mr. Hay had to employ day labor, for which he had to pay what is here considered the high rate of two annas per diem,† it seems to me that there is very good value on the ground for the money laid out. Whether it would not have been better to have waited until it was certain that the works at large would succeed before spending even this much money on attempts at introduction of improvements, is a question which it is now too late to discuss with profit.

30. The method on which it was proposed to work this range of salt lands on behalf of Government, can be described in few words. Free labor, free trade under certain rules, in framing which prevention of fraud and preservation of order in what we were led to believe would be a well thronged area, were the objects mostly aimed at, and payment of all Government dues and cesses, ere the precincts of the enclosure were passed, were, in general terms, the conditions laid down.

31. Hitherto these rules, although, in so far as those which did not require force of law were in question, sanctioned by the Chief Commissioner in March last, have not been brought into anything like general use. In the first place, because up to date we have received no printed copies of the code as it may stand after final review by the Chief Commissioner; but, secondly and mainly, because it has been found impolitic to apply them in their stringency at the beginning.‡ It can scarcely be necessary to lengthen this paper by a detail of every rule which has, for the time being, been held in abeyance. Some omissions and innovations will, however, be noticed. Thus the stamped agreement by which each intending worker was to bind himself to certain conditions, has not been demanded—no passes, or workers' tickets, have been issued, clearance of the enclosure at night has not been insisted on, nor the general ousting of all former residents within the intermural space. And among arrangements not contemplated in the code, has been established within a very short distance, of the Patrol's residence, an enclosed "Mundee," or general storage ground,§ in which a series of pits, distinguished

Our system for these salt lands.

Departmental rules.

Only partially applied.

Notice of some innovations and omission.

The mundee or store-ground.

* These Mr. Hay hopes to drive by a single bullock, thus enabling one pair to do at least the work of two.

† It is rather a source of complaint here that Mr. Hay should have been so liberal. Kisans say that his rates made their Bhutteyas discontented. On the other hand, had he not been liberal, he would have got no labor. An anna a day, in some instances one Rupee for fourteen days, is what people here profess to pay for hired labor.

‡ This was foreseen by the Commissioner of Inland Customs, who instructed Mr. Hay to work gradually up to the code.

§ Total area 17,920 square yards, i. e., 140 X 128.
 Deduct 3,316 " " occupied by roads.

14,604 available for storage.

Sixteen square yards allowed for each pit $14,604 \div 16 = 912$ number of pits for which accommodation is available.

There are 345 pits at present, and space for 367 more available. The pits were dug by the owners of the salt at their own expense.

by initial letters, has been allotted to each Dowana, a number corresponding to that of his account in the registers, being affixed to the pit or pits containing the stock of each separate owner. No salt is allowed to remain on the works except for necessary drainage, during which each heap is stamped to prevent removal. As regards facility of safeguard, all advantage is with the new plan, nor has any complaint against this been preferred to me during my stay of several days. A weak point in the arrangement is that the owner cannot be, at one and the same time, in the mundee to superintend sales, and on his works to look after manufacture.

Storage of salt.

32. Into the pits, marked as described, salt is measured in baskets carrying twenty seers each, contents of which have previously been determined by weightment with Government weights.* In Annexure B. will be found details of the clearance of twelve of these pits, estimated to contain 1,797 maunds 4 seers, but which turned out 1,993 maunds 16 seers, or 11.24 seers per cent. increase. So far then we seem to be working on the safe side.

33. This storage ground, which is susceptible of any extension which may be needed, would lend itself perfectly to institution of a system of bonding were the trade seem to be desirous of availing itself of such a privilege. Up to date, however, although the Assistant Commissioner has been authorized to permit the process, no one has cared to avail himself of it.

Applicability of store ground to a system of bonding.

34. The season's operations began, as regards exposure of brine, about the 20th, and, in respect to *extraction of salt* on the 26th of March, when the first batch of salt, *viz.*, 76 maunds, was produced in the works of Purshun and of Bukhtawur of the Chupkaha Dowana.

35. Work closed on the 20th of June, by which date all brine fit to work and remaining exposed was gathered into sunken reservoirs and put under cover. The first monsoon rain fell on the 21st of June. A trifling quantity of salt has since been made by exposing reserved brine during breaks in the weather. The number of days during which the manufacture of salt was carried on was thus 93,† and the quantity turned out during these amounted to 22 684 maunds 20 seers, or an average of 243 maunds per diem.

36. The highest price at which, during the above time, salt was sold was Rs. 1-12 per maund realized on the 21st or 23rd of April for 10 maunds 25 seers of salt produced at Kurumtulleea (*tide* paragraph 8, No. 1 and para. 15). The lowest price accepted was 6 annas per maund for one maund and one seer made at Goolurreea (*tide* paragraph 8, No. 9). The average has been 12 annas 6 pies.

37. The following is the process by which salt is cleared for traders:—The first step is payment of duty and cesses on the quantity which it is intended to purchase. The money being

* A book is kept in two volumes in Vernacular, in which all entrances and clearance of salt are recorded. The volumes come into use on alternate days, one being in the Patrol's Office for posting of registers, while the other is in use for the current day's work.

† From 1st April to 24th May the following interruptions, by reason of weather, occurred, *viz.*, east wind 10 days, cloudy 20 days, rain 5 days, or a total of 35 days on which the weather was more or less unfavourable. So serious a reduction, amounting to no less than 37.63 per cent. of the whole period, was in itself a formidable addition to our difficulties.

lodged with the Patrol,* a receipt is given to the trader by whom it is taken to the Mundee, the Assistant Patrol in charge of which allows the intending purchaser to examine the salt and make his bargain with the owner. Terms being arranged, the salt, after weighment with Government weights in hand scales, is brought by the buyer and seller together to the weighing shed, where it is weighed anew by the Patrol, or the senior Sub-Assistant Patrol, when, after deduction of tare, and of allowance of $2\frac{1}{2}$ per cent. for dryage,† more salt is added if the remainder falls short of, or is resumed and re-pitted, if it exceeds the quantity specified in the receipt. As a rule, the former result prevails. A rowannah (so called, for the document bears no resemblance to the elaborate paper known by that name on the Inland Customs Line) bearing seal and signature of the Patrol, is given to a peon who escorts the trader to the gate out at which he is passed by the Jemadar on duty, after inspection of the rowannah; it is then returned by the peon to the Patrol in whose office it is filed. The only paper of which the trader is allowed to retain possession is the receipt which is given to him when he lodges his money.

38. Just now,‡ pending settlement of the question of resumption of tuccavée, the *price* of the salt is lodged with the Patrol.

Temporary impounding of sale proceeds.

39. The result of the season's operations may be concisely described as a general loss; loss to all concerned—to operatives, to Kisans, who with rare and as yet uncertain exceptions have failed to recover their outlay; to Blutteyas, who have gone away in debt to their Kisans; to talookdars and other land-holders, whose land has come within the enclosure, and whom the royalty has not repaid for the land revenue which they had to forego to Government, which has spent, on establishment alone, without counting constructions, six times as much as has resulted from the cess which was to have covered the outlay. There is reason to believe that the advances taken from Government have been largely supplemented by loans of money at the usual ruinous interest from local money lenders,§ or at equally disastrous rates of grain from zemindars.

The season's operations; their issue.

To workers.

To Talookdars, &c.

To Government.

Tuccavée supplemented by private loans in coin and grain.

40. The causes which have combined to produce this failure are various, but all centre in one first cause—the difficulty of obtaining labor. I have the satisfaction of feeling assured that it is well understood by the administration of Oudh that, whatever may have been the personal opinions of the heads of this department on the merits of the question of reviving a local manufacture of salt, once that question was decided in the sense that the experiment ought to be tried, *their* determination was taken to spare no effort to make the trial a success. This conviction enables me to write plainly.

Causes of failure.

Difficulty of obtaining labor.

* A purely temporary arrangement, allowable, perhaps, on the principle of smoothing away all points of first friction, but open to palpable objections, where no proper Treasury arrangements and no armed guard are maintained. Just now coin is kept in a not over-strong box, and as soon as 1,000 Rupees are in hand, is remitted to the Poorwa Tehseel. This limitation of balance will henceforward, as long as the local receipt of coin is permitted, be adhered to more rigidly than has heretofore been the actual practice.

† None is allowed by the seller.

‡ That is, from the 18th of July.

§ Mr. Hay questions this, but the assertion has been made by so many persons that one is compelled to think it well founded; and while I have little doubt that individuals have exaggerated the amount of their loans, I quite believe that loans have generally been taken; and paragraph 24 of Mr. Hay's own recent report of the 30th ultimo, in which he asserts that he ought to have been more liberal with tuccavée, confirms this conviction; for if our advances were not sufficient, they must have been supplemented from somewhere, and to borrow money was the evident source of supplement.

Existing condition of salt-making classes.

Effect of public works and agriculture.

Interests of landholders, how implicated.

Obstacles arising out of the foregoing.

Resulting in a scanty supply of labor.

Comparison of profits in agriculture and in salt-making.

Hindered by absence of trustworthy data on the latter.

The salt-makers' objects.

What they ask for.

41. Allusion has already, in paragraph 16 of this Note, been made to the altered condition of the hereditary salt-makers. They are known to have been drawn in thousands to the various public works, far and near, at which their earnings are large; and of those who have remained at home, the majority, if common report of all classes can be believed, have found occupation in agriculture, which not only furnishes themselves with at least a fair living, but makes it very greatly to the interest of their owners of lands newly brought, or to be brought, under tillage, to induce them to remain where they are. We had thus against us, *firstly*, a diminution of labor by emigration and diversion to other occupations, and *secondly*, the influence of a potential class who, however fairly they might speak the English official who urged them to aid the new movement by supplying drafts of men, could not be expected to look with eyes of favor on a scheme which, while it held out to themselves no benefit whatever beyond the very indirect one of promising to make their modicum of salt a little cheaper, was likely to do them the direct disservice of denuding their estates of industrious tenants or laborers, most of whom were probably their debtor as well. It would be asking too much of human nature to expect earnest co-operation under such conditions, and I am told that in this very neighbourhood* the influence of landholders has been directed towards keeping the classes we require from engaging at our works.

42. Out of this combination has arisen the first obstacle—a scanty and reluctantly-conceded supply of hands.

43. Practical men whom I have here consulted have told me that under favorable conditions the production of salt will yield profits superior to those of small agricultural holdings. It will no doubt be possible, through the kindness of the District Officer to whom application has been made, to ascertain with fair accuracy the average profits of small cultivators; but against such a computation we are not as yet, for reasons hereafter to be exposed, in a position to display, with any approach to reliability, the profits of an ordinary salt work.

44. Looking at the matter from the salt-makers point of view, one of two things was essential to draw them in, *viz.*, a system lax enough to leave large secret profits, or this being refused, a *local monopoly*. Question the men themselves as to what is essential to make these works succeed, and the following are *their* remedies—all included in the one word *purvustee*, *viz.*,

(1). A lowered rate of Duty.

(2). Stoppage of Kharee and Gooraree salt. The latter is here the generic term for western produce, and the two have been bracketted in the mouth of every salt-maker to whom I have spoken.

45. In other words, it was, according to the makers themselves, with every leading man among whom, now on the ground, I have talked these matters over, not enough that

* I am conscious that information of the kind must be accepted with reserve, but this accords

* Churn, son of Bodee, by name. too completely with common sense deductions to be rejected without reserve. Since the above words were written, a Nooneebeh Chowdree* from Jhubroulee, in the Lucknow District, has just told Mr. Hay, in my presence, that the landholders of that neighbourhood in which 4 to 500 families of salt-making castes exist, are giving leases at reduced rates to induce these to remain, and that these landholders are averse to their people engaging with us.

Government should permit the manufacture, should provide land and advance money. This was but half the battle; Government had next, by severely excluding all but *their* produce to *force the latter on the market*.

46. "Gooraree" is a great word among these people, of which fact I had but a few hours ago a curious illustration. Questioning a very leading salt-maker of Chupkaha, the locally well-known Seetul, as to the quality of salt produced during the rains, he wound up a dissertation on its superiority over ordinary produce by the words *Gooraree-ke-moowafik*. Putting aside the admission implied in these words of general inferiority of local salt, it has been abundantly proved to me that the people here stand in great awe of the commercial rivalry of the western salts; and without seeking to dispute that the sale of an inferior salt, mostly provided by mechanical treatment of the sulphate of soda, made in Futtahpore, Cawnpore, and elsewhere in the North-Western Provinces, and here and there in Oudh too* is capable, unless promptly checked, of seriously interfering with local out-turns, I have now no hesitation in saying that the salt-makers themselves stand more in dread of the influence of the "Gooraree"—a word hitherto and somewhat inexplicably kept out of the discussion. In reality, the western salts are the only formidable rivals, for no one dreams of stopping *them*. Oudh is to be a fair field for them and the local produce; whereas, admitting all that has been said of the "thousands" of maunds of impure salt,† with which the sulphate of soda works have been described as flooding the province, a remedy for this is possible, once certain facts, now under trial, are established.

47. It must by this time be apparent to whoever will dispassionately review the facts which the crucial test of some nine months of practical endeavour in the shape of right hard work to resuscitate the salt manufacture of Oudh has disclosed, that an original misconception has underlain our plans. It was believed that so anxious were the salt-making classes to see their ancient trade re-established, that they would readily accommodate themselves to whatever precautions might be held essential to the security of the State revenue, and would eagerly respond to an invitation to exercise their craft on terms which implied a fair commercial contest with the western salts. It is now fully apparent that this was by no means the idea of the salt-makers themselves—what they probably looked forward to was a supervision more nominal than practical, and abundantly perforated with facilities for evasion. It was naturally a disappointment to those who, with such notions, first answered to our call, to find themselves confronted with measures which, even in their present relaxed condition, have made anything like illicit profit a thing too hopeless to be seriously tried for.‡

* The works at Bala, in Roy Barielly, were denounced to me the other day, in this very enclosure, equally with those of *Gunga par*.

† Without seeking to deny that injury has been done to the regular salt trade by the impure kharee salt, sharing, indeed, in the belief that such *has been the case*, it is almost certain that common rumour has, as usual, much exaggerated the reality. To begin with, the "many thousands of Ondhi Noonceahs" working at Kharee in Futtahpore and Cawnpore, is simple nonsense; it according to my best information, 4,500 would cover every soul so employed, so that granting that none but Ondhi men were there (and we who know of the communities settled there for years past know better than to believe that), the term "many thousands" would still be a misnomer, while all efforts hitherto made have failed to catch any but the smallest quantities of kharee circulating in Oudh. True, these last efforts commenced late, but still early enough to have revealed something had thousands of maunds really been pouring into Oudh.

‡ A small quantity of salt has been secretly buried to our present knowledge. A series of four walls and guards would have multiplied these secret stores in a genuine geometric progression.

"Gooraree" or imported salts.

Their influence, &c.

Salts from works for sulphate of soda.

Great influence of imported kinds, which cannot be stopped,

while the other may.

Original misconception on subject of salt works.

Influence of a provision of ours, now found to have been mischievous.

Effect of the wall.

Labor whence procured.

Effect on salt works.

What led us to devise a wall.

Much wood having to be felled, &c., aided in retarding the work.

48. Among secondary influences which have told *against* the season's results, one of our own provisions, the enclosure wall, has, it is now proved to me, retarded the general progress. Mr. Hay asserts, and his statement has been confirmed by independent inquiry, that labor from outside was not, at the time when the work was begun, available, except on conditions much more expensive than he was inclined to accept;—spending Government money, he had to make it go as far as possible, and he took labor whence he could get it most readily, and on terms which appeared to him equitable, *viz.*, from among the people already within the enclosure. Looking at matters by our present lights, all this, the very construction of a costly* enclosure before we had anything worth guarding, to enclose, and the diverting of interior labor from its natural purpose, may easily be adjudged to have been mistakes. It *might*, I now believe that it *could*, have better served our purpose to have accepted the risk of some salt slipping away, until we had a considerable body with capital involved implicated in the scheme, before we took in hand the wall, which not only withdrew labor from salt-making, but opened the eyes of all within its limits, and of many others† who might not improbably have joined in the venture to the futility of one of the hopes on which it is my conviction that every Nooneeah and Lodhi rested. It *might*, and again I may say *would*, have been better had Mr. Hay, when the real effect of the wall on the minds of the people became apparent, or when he saw that to compass it he must turn what could hardly have been willing labourers from their own pursuits,‡ called the attention of his superiors to the facts and asked for orders. Risk might have been accepted: a little more outlay might have been approved. But this is wisdom after the event, and as regards Mr. Hay, large allowance must be made for the pressure of all kinds, and for the difficulties, needless to enumerate, under which he was laboring.

49. As regards the heads of this department, their invention of the boundary walls, and their anxiety to see these accomplished, were part of the fruits of the general misconception described in paragraph 47. Putting aside their own belief, they acted on the impression that, once the *fiat* issued, crowds would gather to the work: a preventive cordon was known to be essential, and, except at ruinous cost, could not be complete unless supplemented by an inanimate barrier. The hedge to which we have always looked forward, and the first sprouts of which are now coming up, must be a work of time, and we fall back on the idea of a wall. Had the real facts been known, had our own prejudices on the subject been strengthened by being told that the plant which we were ordered to rear was so sickly that unless pampered and sheltered it would wither in its first season, our action would certainly have been different.

50. Another great piece of work which had to be undertaken was the felling of thousands of trees (which, in course of time, had grown up all over the ground), and which took up much of the time which might otherwise have been devoted to preparation of works. Clearing of refuse, *i. e.*, accumulations of vegetation, &c., &c., from the surface of the soil, also occupied much time before the real work could be taken in hand.—(Mr. Hay).

* The wall and its gates have cost Rs. 3,151-14.

† It is said here that the people *within* were freely bantered by those *without* the wall as *kydees*.

‡ Among the effects of this was positive injury to plant. Patas imperfectly lined were, in some instances, ruined while their owners were at the wall, and had to be plastered anew.

51. Another source of disappointment has been that, one and all, we have expected too much—have demanded, from the space of time involved, more than it was capable of realizing. Somehow the fact seems to have been overlooked that we were about to crowd into one season all the labor, all the expense of a first establishment, which had to be created anew, *de fond en comble*, and the cost of which would have to be recouped in more than one. Many of the Kisans, the master saltmakers, have expressed to me their appreciation of this fact, and the better informed among them admit that their outlay on plant for another season will not be much more than one-fourth of that just incurred. They had to create a fixed capital now in their hands. They have been disappointed in their expectations of prompt clearance of produce, about half of which remains unsold, and they chafe under the inconvenience of lying out of money, possession of which would just now be very convenient to them. We, on our side, have been too anxious for success, and did not, in anticipation, appreciate the effect of the many obstacles but natural to the resuscitation of an extinct industry. No capital error as to management of the works can, to the best of my knowledge, be attributed to our local officer. Coming here to discover in what lay the secret of our failure, it was my duty to be watchful for such errors, and I have looked for them carefully. I have been much among the people, mostly without Mr. Hay; but, after many days spent on the ground, I can lay my finger on nothing of which I can say "*this is the* source of our ill-success, and has been brought about by error of judgment or neglect of duty on the part of the officer to whom our arrangements were entrusted." Mistakes have been made,* and where I have chanced on one, I have said what has seemed to me needful; but none that I have discovered have been of weight sufficient to swamp the scheme. What have hampered it may be concisely grouped as—

- (1.) Lessened supply of labor.
- (2.) Want of interest in the matter, on the part of the castes concerned, who have found other and profitable occupations.
- (3.) Secret hostility of landholders to a project which denuded their lands of useful laborers, tending of course to raise the cost of such labor as remained.
- (4.) Miscellaneous hindrances mostly natural to the situation.

Too much was, on the whole, looked for.

No serious error traceable to the officer in charge.

52. Difference of opinion exists as to the ability of this produce to compete with the western salts. Thus, Thakoor Maipal Singh asserts that it can always undersell the foreign salt by a seer to a seer and a quarter in the Rupee, while Muttooreea Bralmin, a master salt-maker, volunteered the remark that he had been at Sooltanpoor, had seen the process there in use, and that salt could there be made much cheaper than here, *because there was only one labor, the raising of the brine, to be undergone.*

Ability of local to compete with imported salt.

Various opinions.

53. It is impossible to deduce from existing results any reliable inference as to future cost of produce. In the first place, no one worker has worked as long by at least 60 days, or made as much by one-third at very least as he ought to have turned out even for the number of days in account; and if it were

Impossible to deduce reliable inferences from existing data.

* The multifariousness of Mr. Hay's occupation involving treatment of many matters of which he was entirely untrained, will not be overlooked, when higher authority comes to judge of these.

possible (*which it is not*) to obtain the actual truth as to his outlay from every master-worker now on the ground, so many allowances (for lateness of beginning, for effect of weather, and for concentration of outlay, *inter alia*) have to be made that the account would be mere figure work and entirely untrustworthy.* Great uncertainty on this question of original cost will always prevail. Cost will vary from Dowana to Dowana from natural causes, *e. g.*, in the northern Dowanas, twig-lined wells answer all purposes; in some of the southern, the much more costly wood lining† is indispensable, and the strength of brine varies greatly. Personal qualities of workers will introduce other variations from work to work: a gang of Lodhs, who every now and then permit themselves to drink, may well get out less salt in the same time, than one of Nooncealis who are always sober.‡ As for the owners of works, it is simply impossible to believe what they say. Zalim Singh, master-maker at Deekhers, told me that he could not sell his salt at profit for less than a rupee per maund; but that the men of Goolureea, where the brine was richer, could sell theirs for eight or nine annas. The Goolureea men, on being questioned, protested that nothing less than fourteen annas would save them from loss.

Variations in original cost.

Conflicting statements of workers.

The future dependent on supply of labor.

Deputation of Mr. Hay to seek labor advised.

Personal view of chances of obtaining labor.

Lowest number with which work is feasible.

54. The future of these works depends just now on the solution of one question,—can labor be attracted hither? and over this it is profitless to theorize. Actual trial must decide; but as it will not do to sit still and wait, spending more and more money meanwhile, I strongly advise that Mr. Hay be at once deputed to visit those parts of the Province where salt-makers are known to herd, and in concert with the District Officer, and by aid of the leading Talookdars, with most of whom Mr. Hay professes to be acquainted, see what are our prospects on this head.§ If aided as he will be by the District authorities, Mr. Hay can induce a sufficient number to resort to the works, where they ought to be by the 1st of January (if responsible men can be found to answer for repayment of any small earnest money, such as a rupee each, to be repaid as the season goes on, it might be well to risk something in this way), then we may yet hope to see the Mullowna Salt Works endure until the completion of certain railway lines brings them in contact with conditions which they may or may not survive. It may happen that as the news of revival of this industry spreads and circulates, many, now working at distances from their homes, may be attracted back to an occupation to which they are believed to be attached.

55. I cannot, however unwillingly I write the words, defend myself from the conviction that no sufficient supply of labor will be obtained. Remembering how many interruptions must be looked for in a process which depends so completely on the state of the weather, and bearing in mind all other causes which may interfere with even continuity of labor,|| I look to 8,000

* On one point all landowners and master-workers agree, that if one Rupee per maund can be obtained as the sale price, the works will prosper. I believe that in stating the approximate cost at an average of 10 annas, Maharaja Dirig Biji Singh, of Bulrampoor, has gone nearer to the truth than any one else.

† The wells being shallower, can however be worked by less costly bullocks, and this equalizes the expense with that of twig-lined wells.—(Mr. Hay.)

‡ Some good salt will be made during the rains. All agree that the quality will be excellent, but no one can say how much will be made.

It is made by the "Goorin" process, *i.e.*, by mere scraping of the salinated earth, as this dries on the surface during breaks.—(Mr. Hay.)

§ Visiting the north-west even at need.

|| Sickness, holidays, fairs, marriages, deaths, accidents to plant or to laborers, are some of these.

men as the very lowest number which we can expect to see turn out the 200,000 maunds of salt which would bear Government through its expenses, and having cause to believe that there is a very general discouragement among those who have so far joined in the venture, and that the Bhuttayas who have dispersed to their several houses, will give anything but an alluring account of their experiences here; recalling, too, what I have been told of the feeling of landholders (*vide* paragraph 41), I own to feeling that the task of inducing nearly three times the number to come in for another spell of work, appears to me to be arduous almost to desperation.

56. Nevertheless, arduous or easy, hopeful or desparate, the trial ought to be made. If labor *cannot* be got, there will be nothing for it but to close the works; but, before this very humiliating conclusion could be recommended, a serious and business-like attempt should be made, all through Oudh, to recruit workers, while, in the north-west, closing every sulphate of soda work, against which we can prove any tangible breach of faith, we aid the movement here by causing our officers to indicate these works as the resort for all those who still desire to follow an hereditary calling. Another consideration which ought to urge us to strain every nerve ere we own ourselves beaten, is, that, unless Government by waiving (in cases of pure loss) recovery of tuccavée, should consent to bear the consequences of what (should failure after all force its way to recognition) will have been its own mistake, all those who aided us by lending their names as sureties will suffer lamentable and often ruinous loss. The experiment was for the benefit of the people of Oudh, and it would surely be more equitable to charge any loss to its general revenues than to suffer this to fall with annihilating weight on the heads of a miserable few who backed Government with their labor, or with their credit, in an experiment which cannot be said to have had as yet a fair trial.

57. This brings us to the question, should the tuccavée advances be at once realized? or if hope remains of a successful issue, would it be better to spread their realization over a longer term? On general grounds my first inclination, contingent on hope of continued working, would be to advocate the more lenient measure. It is useless, and would be mischievous to ignore the general discouragement even of some who, if ultimately they may not actually lose, are meanwhile put to great straits by tardy realizations; still worse of course those (the majority) who have an assured loss to brood over. If to all existing burdens we add that of instant repayment of advances, the outcry will be loud, will reach far beyond these walls, and lessen, I conscientiously believe, whatever chances we just now hold of inducing others to join in the work.

58. It will be proper here to notice a remark made to me in Oonao by the Officiating Deputy Commissioner Mr. Wood, to the effect that, unless we realized now, we should not realize at all, and to recall that Mr. Hay has expressed to the Commissioner of inland Customs, his opinion that were we to fail to realize presently, the sureties would hold themselves released from their bonds.

59. I have carefully studied the wording of these bonds,* and the only indication which I can see of anything which could be construed as limiting the currency of these to any particular

Prevalent discouragement

The most strenuous effort should still be made.

Additional reason for striving to succeed.

Question of promptly realizing advances.

Effect of such a measure would apparently be mischievous.

Opinion of Officiating Deputy Commissioner of Oonao.

Wording of bonds.

* Not "salt of this season," but "salt" generally.—*Vide* App. 2, 2.

Does this imply limitation
of time?

Customary period for
which advances are made.

Probable impression of
the people.

Security for advances.

Doubtful items.

item is in the phrases (alluding first to the borrower) "and promises to pay on preparation and sale of salt,"* and (alluding to the surety) "if so and so, at the proper, time shall refuse, &c. Now if, in the opinion of the Financial Commissioner, to whom, in a few hours after completion of this paper, these facts will be submitted, this wording ties us to time, we must realize, as each man sells his salt, or induce the sureties to renew. In most cases, sale will not have covered outlay, and the surety will have more or less to pay. Under such conditions, he would probably be found docile enough about renewing his bond. If, on the other hand, the surety bond is of unlimited effect, it rests with us to realize when we like.

60. On the other hand, the custom of the Province seems to be to give out advances for agricultural purposes for three years,† and it is very possible that, not much accustomed to fine distinctions, all concerned in these bonds may have expected to see them extend to the familiar period. As there seem to me peculiarities in our relations with the principal surety, which make it unadvisable for me to stir the general question until I can personally discuss it with the Financial Commissioner, I have, of set purpose, refrained from interrogating parties to bonds as to their impressions of the terms on which advances were taken.

61. I now come to the question of how we stand as to security. Altogether (*vide* Annexure D.) we have a balance of Rs. 19,568 to realize. Of these, Rs. 13,808 are on surety of Talookdar Deena Singh,‡ through whose son, heir and general agent, Maipal Singh, all the payments have been made; Rs. 1,230 on that of Talookdar Muhesh Buksh, and Rs. 717 on that of Bowra Lodh, a well-to-do landholder. These make up Rs. 15,755. Of the balance of Rs. 3,813, a sum of Rs. 1,515 (A.) issued through Mahanund Patwaree, of Juggut Khera, is on surety of divers Lodhs, and, although legally secured as far as bonds go, may turn out difficult to realize: Rs. 50 are on surety of the Putwaree himself. Of the remaining Rs. 2,248, Rs. 1,501 (B.) are on surety of three Thakoors — Goolab Singh, of Punair (Rs. 825), Puhlwani Singh, of Sureynapoor (Rs. 466); and Thakoor Singh, of Urhowlee (Rs. 210), whom the answers to references to the Tehseels show to be worth§ a good deal less than they are bound for; Rs. 313 to Churun, a master-maker of Narainapoor; Rs. 369 to Thakoor Zalim Singh, of Jeeakhera, and Rs. 20 to one Seeta Ram, of Oonchwa, total Rs. 702 have been advanced, without security, on Mr. Hay's conviction of the solvency of the recipients, and the final sum of Rs. 45 is on the security of Thakoor Khooshal Singh, of Oonchwa. For all details of the aggregate of Rs. 3,813 see Annexure E., and for particulars of every advance, Annexure F.

62. Over the sums marked (A.) and (B.) in the preceding paragraph, aggregating Rs. 3,016, or 15·40 per cent. of the whole balance, some trouble might be experienced, unless I am wrong in my estimate of the Tehseel reports on the sureties under (B).

* *Vide* Annexure C.

† In a report to the Financial Commissioner, which he is on the point of despatching, and which I have seen since the above was written, Mr. Hay says distinctly that such was the impression among the people.

‡ The value of this estate is given by the Oonao Court at Rs. 4,994 x 8 = 35,952, i. e., the Government jumma at eight years' purchase. General Barrow considers the estate worth from Rs. 40,000 to Rs. 60,000.

§ At least this is how I translate the word.

Supposing them to be sound men, the most doubtful item (A.) would be 7·74 per cent. of the outlying advances.

63. In respect to this sum (A.), I found Mr. Hay laboring under what at the time I thought a false impression as to the effect of an institution called by him *Zunjeerabundee*, "by virtue of which he seemed to think the putwaree, notwithstanding the absence of any bond of his except for Rs. 50 and every surety for any one man of those who received advances through the putwaree, individually answerable on some unlimited liability principle for the aggregate." Seeing no possible harm in a general inquiry as to the feeling of the people on the question of *Zunjeerabundee* (I never had any doubt as to what such an arrangement might be worth in law), I made, in Mr. Hay's presence, such an investigation as showed that, supposing A. to become surety for B. for Rs. 100, and B. in his turn to be surety for C. for Rs. 50, it was useless to expect A. to answer for Rs. 150, supposing B. and C. between them to fail to pay the Rs. 50, while B. for himself failed to pay his Rs. 100. The worst that could, according to caste code, happen to B. would be his social exclusion. If this total of Rs. 1,515 should cause any trouble, it will be due to this misapprehension on the part of Mr. Hay.

64. As collateral security for the aggregate of Rs. 3,813, which, as shown in the paragraphs immediately preceding, include some doubtful items, we have about 1,528 maunds 14 seers of salt in store; and about 10,651 maunds, which may go to lighten the strain on the more trustworthy sureties,—Deena Singh, Muhesh Buksh, and Bowra Lodh.*

65. But the peculiarity of our relations with Deena Singh cannot be passed by unnoticed. *We have no kind of bond for any of the sums for which he is supposed to be liable.*

66. We hold, it is said, in the Oonao Treasury, his agent's (Maipal Singh's) stamped receipts for every sum paid through him,† but this is all. Mr. Hay's explanation of how this state of things came about is to the following effect:—First of all, that he was told not to be over particular about legal security. He has by him a note from Mr. Steinbelt, formerly an Assistant Commissioner in this District, in which the latter mentions having seen a letter from the Commissioner of the Division to the Deputy Commissioner of Oonao to the effect above-mentioned. On this note is an endorsement in the hand-writing of the Commissioner of Inland Customs, directing Mr. Hay not to act on its purport without direct orders from the Financial Commissioner, to whom he was directed to refer. This reference he believes himself to have made, but is unable to trace his own letter, or to say if the correspondence were official or demi-official.

67. Secondly, Mr. Hay asserts that he always intended to take a bond, as soon as all the advances for which Maipal Singh was to render his father responsible were paid out; but that, before the disbursements in question were complete, the estate of which Maipal Singh is manager, came under administration by the Oonao Court, which, in Mr. Hay's opinion, makes any legal bond unnecessary. He asserts that he was told by Colonel Chamier that he (the Colonel) had recorded the departmental claim, and "that it was all right." Mr. Hay describes himself

An erroneous impression entertained by Mr. Hay.

Collateral security.

Peculiarity of position with respect to Deena Singh.

Explained by Mr. Hay.

Mr. Hay's explanation continued.

* There may also be about 300 bullocks in the enclosure (many of these were allowed to go out when work ended—the sureties consenting—and some were released during Mr. Hay's absence, by Mr. Patrol Jones. In this latter case, it is not known if the sureties were consulted.—(Mr. Hay.)

† (Mr. Hay.)

as having gone to the Financial Commissioner, and as having told him that the said estate was about to be sold for a claim of the Bank of Bengal for Rs. 10,000, mentioning that he (Mr. Hay) had taken no legal bond for security for advances, inasmuch as the sum to be issued was not yet completed, and proposing to buy the claim of the Bank, so as at once to save the estate and assure the departmental interest. Mr. Hay then proposed to consult the Judicial Commissioner, to which the Financial Commissioner assenting, Mr. Hay went to Mr. Capper and explained the position. Mr. Capper is said to have remarked that the interest of Government must be secured, and that he would send for the file and pass the necessary orders. Hearing that the sale was fixed for the next day, Mr. Hay proposed to go to Oonao, did so; saw Colonel Chamier; arranged with him to stay the sale; record the claim of the Government for advances to salt-makers against the estate, and bring the latter under Court management. This is Mr. Hay's account of the transaction taken down from his own lips and read over to him. The authorities quoted make any expression of opinion by myself, on points which I do not yet understand, unnecessary.

Culturable lands, &c.

Royalties, &c.

Proposal of Commissioner of Lucknow Division.

Management has fallen to Mr. Hay.

His system.

68. It remains to notice the question connected with utilization of lands within the enclosure not required for salt manufacture. In his letter No. 82 of the 14th—15th January 1870, Mr. Currie, then Commissioner of the Lucknow Division, proposed, paragraph 4, while granting a royalty to Deena Singh, to buy out Muhesh Buksh and Bowra Lodhi, proprietors of much smaller shares of the enclosed lands. Mr. Hay says that this latter intention has since been abandoned, and that the two last-named are, equally with Deena Singh, to receive royalty according to their shares in the land; but I am unable to trace any correspondence to this effect. The proceeds of such salt lands as were not required for salt-making, and of groves, tanks, &c., Mr. Currie proposed, after deducting rent, to place at the disposal of this department to provide for internal roads and conservancy and dispensary arrangements. From the wording of Mr. Currie's letter, it may be inferred that he meant all these proceedings, down to the payment of rent due to Government, to be the work of the District authority; but this has lapsed to Mr. Hay,* who, through the agency of the old proprietors, has been leasing lands, &c., &c., on the following principles:—

First, provision to be made for salt-workers, who, their homes being distant, desire to remain here.

Next, for resident salt-makers, who formerly held lands within the enclosure.

Next, for resident salt-makers, who have hitherto not held lands within the present limits.

Lastly, for those residents within the enclosure who, as village servants, are, by services rendered to salt-makers, indirectly connected with the manufacture.

The former landholders to allot the lands, collect the revenue at harvest time, and pay the same to the Assistant Commissioner of Inland Customs, instead of as heretofore to the Tehseeldar, receiving *hukk zumindaree* for their trouble.

A premium of 8 annas on rent of Rs. 5 and of 1 Rupee on rent above that sum, to be allowed to cultivators.

* This arrangement appears to have been made verbally between Mr. Currie, Colonel Chamier, and Mr. Hay.

69. Just now all these arrangements are yet crude, not to say in confusion. There is some complication with Maipal Singh about proceeds of trees felled, and charcoal made and sold by him.* The accounts of this transaction as well as those connected with leases of land, being as yet altogether incomplete, I can come to no opinion concerning them, nor can now afford to await their completion. But Mr. Hay declares himself competent to settle everything in a very few days.

All arrangements connected with land are as yet incomplete.

70. On general grounds, I dislike the idea of our being saddled with these land revenue arrangements. Mr. Hay may be competent to deal with questions, to consideration of which he has not been trained; but he may not always be in Oudh, and to any successor of his, revenue administration might, without reproach, be a *terra incognita*.

Personal opinion as to management of lands by a Customs official.

71. Expenditure and realizations were among the headings set down for notice in my rough notes for this paper, but while it was being written, Mr. Hay has received, from the Commissioner of Inland Customs, a statement re-adjusting and correcting one of his own, which I cannot do better than reproduce. It is more liberal than that which I contemplated, as I should probably have charged in their entirety, sums of which Mr. Hume has allotted percentages only. These are his figures:—

Expenditure and realizations.

Disbursements.

		Rs. As. P.
Irrecoverable tueeavee,— <i>vide</i> paragraph 62 of this Note, 10 per cent. on total ...	...	2,482 1 7
Government buildings 20 per cent. on total	...	394 4 7
Boundary wall, 25 per cent.	...	788 11 2
Mundee, ditch, &c., 25 per cent.	...	12 9 11
Roads, 20 per cent.	...	29 4 0
Chokces (preventive posts)	...	18 6 0
Experimental works	...	1,197 12 0
Establishment	...	3,771 15 6
Contingencies	...	276 2 5
		<hr/>
		8,971 3 2
Receipts, <i>i. e.</i> , cess on salt	...	<hr/> 585 4 7
		<hr/>
Percentage of expenditure on realization	...	1,533.50
Percentage of realization on expenditure	...	6.52

A statement of all sums received and expended accompanies.

72. It has been matter of consideration and frequent consultation with Mr. Hay, whether the Customs Establishment now on the ground might not be decreased. On one principle we are completely at accord, *viz.*, that whatever is the *minimum* with which work can proceed during the open season, must be kept throughout the year. The men composing that quantum

Establishments.

Can it be reduced?

* The present arrangement as to produce of trees, groves, &c., had not been made when this cutting of trees, essential to clearance of ground for salt-making, began in November, when Mr. Hay was in possession of no orders on the matter of produce of the above nature. Maipal Singh was told to clear the ground, and carry the proceeds after payment of expenses to credit of the estate. Such felling, &c., was stopped on Mr. Hay becoming aware of the arrangement made by Mr. Currie.—(Mr. Hay.)

must be taught that during good behaviour their living is a permanent one. We have next carefully gauged the number of men by the work to be done, and are both of opinion that the existing force* is actually the very minimum for the open season. Mr. Hay, indeed, says distinctly that he will require more hands, *á propos* of which we *may*, under sanction of course, for in that case the expense must be charged to the works, be able to lend men from the Internal Branch and so keep the general expenditure down. Mr. Hay has, in fact, already resorted to this expedient, as far as the loan of men is concerned. During the present slack season, less than half, a third of the men, could do all there is to be done; but were we to act on this basis and reduce our hands as soon as the rains set in, the composition of our force would be as follows:—

One-third, whose presumable interest (tempered by their dread of being themselves selected for reduction), would be to behave well.

Two-thirds, whose palpable interest would be to make the most of any chance of illicit gain. To carry out such a system as this would, in my judgment, be false economy.

MALLOWNA, }
The 29th July 1870. }

F. W. VERE.

* Mr. Hay has already made the Commissioner aware of his views regarding the allowance of the Patrol, but appears now to think retention of the senior Sub-Assistant Patrol desirable.

OUDH AND JOUNPORE LOCAL SALT WORKS.

ANNEXURE A.

MALLOWNA.

Arable land.			Salt Mehals.	Groves.	Barren land.	Roads.	Village site.	Name of village.
Beeguls.	Biswas.	Biswases.	Beeguls.	Biswas.	Biswases.	Beeguls.	Biswas.	Biswases.
304	3	17	349	16	15	2	0	6
167	15	0	32	0	13	39	8	14
135	10	8	29	14	4	22	14	2
170	10	9	101	6	6	0	0	0
171	14	12	22	13	12	0	0	0
20	0	0	18	0	0	0	0	0
Gooran			10	0	0			
57	13	4	37	2	9	31	11	12
1,027	7	10	600	13	19	95	14	14
						177	14	9
						10	2	19
						93	5	2

This paper, with exception of the Oonchwa and Poorai figures, is compiled from Putwaree papers.

OUDH AND JOUNPORE LOCAL SALT WORKS.

ANNEXURE B.

Memorandum of result of Clearance of certain Pits of Salt.

NAME OF DOWANA.	Name of manufacturer.	The quantity the Pits were estimated to contain.		The actual quantity contained in the Pits as shown by weight- ment.		REMARKS.	
		Mds.	Seers.	Mds.	Seers.		
Sahibgunge	Ousari, &c.	255	3	255	3	Increase.	
				40	3		
				295	6		
Bhoorechar	Mukkoo	38	16	38	16	Increase.	
				7	22		
				45	38		
Ditto	Buldee	26	9	26	9	Increase.	
				3	20		
				29	29		
Nareepar	Ousari	13	3	13	3	Increase.	
				0	38		
				14	1		
Gooluria	Prem Sookh	212	21	212	21	Increase.	
				6	33		
				219	14		
Ditto	Gunesh, son of Jhokhee	286	27	286	27	Increase.	
				20	25		
				316	12		
Ditto	Gungadeen	104	23	104	23	Increase.	
				11	21		
				116	4		
Ditto	Goor Bux	225	27	225	27	Increase.	
				24	14		
				250	1		
Ditto	Ujrail	169	19	169	19	Increase.	
				7	24		
				177	3		
Ditto	Gurdha	196	11	196	11	Increase.	
				12	20		
				208	31		
Ditto	Badal, &c.	207	10	207	10	Increase.	
				24	14		
				231	24		
Ditto	Gunesh,* son of Sheo Lall	61	35	61	35	Increase.	
				33	18		
				95	18		
Total		1,197	4	1,797	4	Increase.	
				202	12		
				1,999	16		

* This man has not quite exhausted his pit yet.

OUDH AND JOUNPORE LOCAL SALT WORKS.

ANNEXURE C.

No.	NAME OF RECIPIENT.	Amount of Tuccaves paid.	DETAIL OF TUCCAVES RECOVERED.			BALANCE.
			Amount re- covered up to 30th June 1870.	Amount re- covered from 1st to 20th July 1870.	Total amount recovered.	
		Rs.	Rs.	Rs.	Rs.	Rs.
1	Malipal Singh, Agent Talookdar, Mallowna	17,503	2,603	1,092	3,695	13,808
2	Muhaish Bux, Talookdar, Behar ...	1,725	69	426	495	1,230
3	Bowra and Suktoo, Lumberdars, Bhungwuntpore	1,030	97	216	313	717
4	Goolab Singh, Lumberdar, Punaee ...	965	38	102	140	825
5	Kooshal Singh, Lumberdar, Poorundupore	55	.....	10	10	45
6	Pahlwan Singh, Puttedar, Siryapore	600	48	86	134	466
7	Thakeor Singh, Lumberdar, Adholee	210	.....	.....	.....	210
8	Mahunund Putwaree, Jugutkhera ...	1,695	25	105	130	1,565
9	Zalim Singh	460	9	82	91	369
10	Churrun	358	45	.....	45	313
11	Seetaram	20	.....	.....	.....	20
12	Seetul	200	200	.....	200	.....
TOTAL		24,821	3,134	2,119	5,253	19,568

OUDH AND JOUNPORE LOCAL SALT WORKS.

ANNEXURE D.

Detail of Advances given, &c., on other security than on Mahesh Boksh, Maiyal Singh, and Boura Lodh.

No.	Name of Surety.	Name of Manufacturers who have received advances.	TREASURER ADVANCES.			SALT.			REMARKS.
			Amount paid.	Amount realized.	Balance.	Quantity made.	Quantity sold.	Balance.	
1	Mohammad Puttaree, of Jugatkhera.								
2	Ditto	Narepore ..	80 0 0	6 0 0	75 0 0	67 20	15 16	52 6	Account up to 20th July 1870. Rampershal, Lodh of Jugatkhera.
3	Ditto	Kalee	85 0 0	.....	85 0 0	49 20	3 3	40 18	Ditto, Lodh of Jugatkhera, father of Kalee.
4	Ditto	Rampershal	80 0 0	15 0 0	80 0 0	31 0	3 3	42 37	Ditto
5	Ditto	Heolee	80 0 0	2 0 0	80 0 0	23 0	5 5	34 0	Thakur, Lodh of Jugatkhera.
6	Ditto	Dabgo	80 0 0	2 0 0	80 0 0	11 20	3 2	17 35	Rampershad, Lodh of Jugatkhera.
7	Ditto	Buddha	60 0 0	0 0 0	60 0 0	50 0	10 23	30 12	Ditto, Lodh of Jugatkhera.
8	Ditto	Kashee	85 0 0	0 0 0	85 0 0	30 10	11 87	21 13	Ditto, Lodh of Jugatkhera.
9	Ditto	Oasari	80 0 0	1 0 0	79 0 0	30 0	0	20 0	Qasari, son of Nukshi.
10	Ditto	Rhavani	85 0 0	0 0 0	85 0 0	40 0	10 25	35 15	Fukkera, Lodh of Utewat.
11	Ditto	Nimandha	85 0 0	3 0 0	82 0 0	40 0	10 25	35 15	Reotey, Lodh of Jugatkhera.
12	Ditto	Khusial	80 0 0	38 0 0	42 0 0	43 0	.....	43 0	Rhola, Lodh of Utewat.
13	Ditto	Seetul	65 0 0	2 0 0	63 0 0	109 20	30 16	63 4	Khusial, son of Nukshi.
14	Ditto	Bawik	110 0 0	.....	110 0 0	32 0	20 0	20 0	Rampershad, Lodh of Jugatkhera.
15	Ditto	Gujenishan	70 0 0	.....	70 0 0	5 23	5 5	0 18	Kales, son of Jugatkhera.
16	Ditto	Khurgeo	75 0 0	3 0 0	72 0 0	16 20	10 8	0 18	Rampershad, Lodh of Jugatkhera.
17	Ditto	Mukum	70 0 0	23 0 0	48 0 0	22 15	11 23	10 32	Hache, son of Jugatkhera.
18	Ditto	Qasari	70 0 0	3 0 0	68 0 0	14 1	14 1	.....	Qasari, son of Mirai.
19	Ditto	Goonwa	70 0 0	.....	70 0 0	0 0	0 0	0 0	Rhola, Lodh of Utewat.
20	Ditto	Minkha	70 0 0	.....	70 0 0	39 5	13 10	22 20	Rampershad, Lodh of Jugatkhera.
21	Ditto	Khusial	80 0 0	.....	80 0 0	.....	.....	.....	Qheetoo, Lodh of Utewat.
22	Ditto	Deenl	75 0 0	28 0 0	47 0 0	0 20	.....	6 20	Khusial, son of Nukshi.
23	Ditto	Qasari	60 0 0	.....	59 0 0	.....	.....	.....	Nukshi, Lodh of Utewat.
		Total	1,005 0 0	130 0 0	1,065 0 0	726 23	180 28	629 35	

OUDH AND JOUNPORE LOCAL SALT WORKS.

Account up to 20th July 1870											
23	Golah Sing, of Villages Panjuti ...		Sahibungo ...		100	0	0	30	0	0	0
24	Ditto	...	Belari		200	0	0	200	0	0	17
25	Ditto	...	Jugut Sing, Karantilla		120	0	0	113	0	0	20
26	Ditto	...	Jhun Sing		00	0	0	00	0	0	0
27	Ditto	...	Ghia Sing and Dowlut, of Puchh-biecha		125	0	0	68	0	0	14
28	Ditto	...	Sectal Sing, do.		00	0	0	00	0	0	0
29	Ditto	...	Naput Sing and		100	0	0	100	0	0	0
30	Ditto	...	Sing, Balhadur		00	0	0	00	0	0	0
31	Ditto	...	Lall Balhadur,		00	0	0	00	0	0	0
32	Ditto	...	Muni Ram		25	0	0	35	0	0	0
			Bijring Sing and		00	0	0	00	0	0	0
			Chundeo		00	0	0	00	0	0	0
			Sudhan, Booreelar		80	0	0	11	0	0	0
			Total		965	0	0	140	0	0	201
			825		0	0	0	201	15	0	110
			37		0	0	0	110	37	0	86
			18					15			18
33	Pahliwan Sing, of Seryanporo	...	Sahibdeen Purwapor		00	0	0	12	0	0	48
34	Ditto	...	Malikoo Goolurria		01	0	0	35	0	0	0
35	Ditto	...	Durjana Goolurria		00	0	0	40	0	0	14
36	Ditto	...	Buldeo		00	0	0	05	0	0	0
37	Ditto	...	Badla		00	0	0	01	0	0	0
38	Ditto	...	Sekhi Deen Sing		120	0	0	120	0	0	0
39	Ditto	...	Nimondh		00	0	0	00	0	0	0
			Sinhbara		00	0	0	25	0	0	0
			Khitair Sing		00	0	0	00	0	0	0
			Total		000	0	0	131	0	0	406
			000		0	0	0	005	18	0	347
			18					18			308
40	Thakur Singh, of Urkhoweo	...	Jugut Sing, Sahibungo		70	0	0	70	0	0	1
41	Ditto	...	Gijri Sing		70	0	0	70	0	0	0
42	Ditto	...	Dwarka Sing		70	0	0	70	0	0	0
			Total		210	0	0	210	0	0	1
			20					20			20
43	Ghurran of Nurimporo	...	Churran ...		215	0	0	210	0	0	170
44	Ditto	...	Hunoman Nurimporo		00	0	0	50	0	0	35
45	Ditto	...	Belari		00	0	0	54	0	0	0
46	Ditto	...	Dhingur		00	0	0	15	20	0	62
47	Ditto	...	Thina		00	0	0	01	20	0	30
48	Ditto	...	Choromajoo		00	0	0	01	20	0	16
			Amount paid to Churran to supply food to the men of Narimpore		63	0	0	63	0	0	64
			Total		368	0	0	45	0	0	313
			0		0	0	0	420	10	0	317
			31					10			28

ANNEXURE D.—(continued).

Detail of Advances given, &c, on other security than on Malesh Boksh, Mairn[il] Singh, and Bouri Insh,—(continued).

No.	Name of Bunter.	Name of Manufacturer who have received advance.	Tuckerken Advances.			SALT.			REMARKS.
			Amount paid.	Amount realised.	Balance.	Quantity made.	Quantity sold.	Balance.	
40	Khawal Singh and Thakoor Singh	Thakoor Oondwa	Rs. A. P.	Rs. A. P.	Rs. A. P.	M. S.	M. S.	M. S.	
41	of Oonchwa	"	30 0 0	10 0 0	20 0 0	40 20	18 18	92 2	
42	Ditto	Do.	25 0 0	.. ..	25 0 0	45 20	.....	45 20	
		TOTAL	55 0 0	10 0 0	45 0 0	80 0	18 18	07 22	
51	Zalim Singh of Jea Khem	Zalim Singh	Rs. A. P.	Rs. A. P.	Rs. A. P.	M. S.	M. S.	M. S.	
52	Secretary of Purnipore Work	Secretary	20 0 0	.....	20 0 0	300 0 0	08 20	10 0	70 17
	in Oonchwa	"							
		TOTAL	480 0 0	01 0 0	380 0 0	119 0	25 15	93 31	
		GRAND TOTAL	4,933 0 0	550 0 0	3,813 0 0	2,210 21	707 25	1,442 36	

The 25th July 1870.

W. LYON,
In charge for Patol, Mallawa.

ANNEXURE E.

SECURITY FOR TUCCAVEE, DOWANAH SAHIBGUNGE.

1. Oosairee, &c., Rs. 325; surety, Maipal Singh.
2. Ram Buksh, Rs. 350; surety, Maipal Singh.

N. B.—With this man's bond is filed a surety bond for Rs. 500 from Juggut Singh of Pukkra Buzurg, for Rs. 500, but in name of Sooraj Buksh, son of Ram Buksh. On enquiry, I am told that Maipal Singh is security.

3. Seetul Lodh, Rs. 50; surety, Gopal Singh of Punaee B. Surety said to have been tested in a general list received from the Tehseeldar. In this list, he is described as capable of being responsible for Rs. 50. His share is said to be mortgaged.

4. Beharee Lodh, Rs. 50; surety, same Gopal Sing.

N. B.—Gopal Singh asserts in both his bonds, that his estate is not mortgaged.

5. Juggut Singh Bais, Rs. 100; surety, Thakoor Singh of Urhowlee.

6. Dwarka Singh Bais, Rs. 100; surety, Thakoor Singh of Urhowlee.

7. Gujraj Singh Bais, Rs. 100; surety, Thakoor Singh of Urhowlee.

N. B.—Thakoor Singh is stated by the Tehseel to be able to answer for Rs. 150, but his estate is mortgaged. Only Rs. 70 each were paid out on the above bonds. Mr. Hay states that the surety has houses, trees, cattle, &c., our hold on which is covered by the words "Jaedad Munkoola aur ghair Munkoola" in the bond.

KURUMTULLEEA.

1. Lulleye Lodh, Rs. 160; surety, Maipal Singh.

2. Moonna Nooneeah, Rs. 95; surety, Maipal Singh. Seetul Nooneeah, of Chupkaha, also stands security for Moonna. No reference to Tehseel.

3. Sheoraj Nooneeah, Rs. 180; sureties, Maipal Singh and Seetul Nooneeah, of Chupkaha.

4. Dulloo Nooneeah, Rs. 95; sureties, Maipal Singh and Seetul Nooneeah, of Chupkaha.

5. Sheonarain Brahmin, Rs. 125; sureties, Maipal Singh and Sudkoo Singh, of Kullianpoor, Pergunnah Patun, Oonao. No reference to Tehseel.

6. Soorujpurshad Kayath, Rs. 115; surety, Maipal Singh.

7. Debee Singh Bais, Rs. 60; surety, Golab Singh of Punaee B.

8. Jham Singh Bais, Rs. 60; surety, Golab Singh of Punaee B.

9. Jugut Singh Biseya, Rs. 200; surety, Golab Singh, of Punaee B. Maipal Singh has a factory on his own account in this Dowanah, in connection with which he has received an advance of Rs. 69.

PUCHEEETA.

1. Turron Lodh, Rs. 60; surety, Bowra Lodh. Bowra is stated by the Tehseel to be worth, in connection with Suktoo, Rs. 1,000.

ODHI AND JOGSTORE LOCAL SALT WORKS.

2. Gyndeen Lodh, Rs. 60; surety, Bown.
3. Chutoora Lodh, Rs. 50; sureties, Maipal Singh and Mudaree Lodh, of Rampur, Pergunnah Bhagwuntninger, Zillah Oonao. Stated by Tehsildar to be worth Rs. 25.
4. Mudaree Lodh, same as above, Rs. 55; surety, Maipal Singh.
5. Mukkoo Lodh, Rs. 60; sureties Maipal Singh and Lalleye Lodh, of Danta, Pergunnah Punner, Zillah Oonao. No reference to Tehsildar.
6. Dwarka Singh Bais, Rs. 50; sureties, Maipal Singh and Dirgaj Singh, of Burgudda, Pergunnah Bhagwuntninger, Zillah Oonao. Tehsildar say he is worth 50; estate mortgaged.
7. Bichan and Bukan Lodhs, Rs. 50; sureties, Maipal Singh and Lalleye Lodh of Danta.
8. Rughbir Brahmin, Rs. 100; no surety.
9. Deengoor Lodh, Rs. 65 and 24; sureties, Maipal Singh and Lalleye Lodh.
10. Deewan Lodh, Rs. 65; sureties, Maipal Singh and Lalleye Lodh.
11. Lalla Lodh, Rs. 90; sureties, Maipal Singh and Gungoo Lodh, of Maharajpoor, Pergunnah Punner, Oonao. No reference to Tehsildar.
12. Pirthee Singh Bais and Gopal Brahmin, Rs. 150; sureties, Chundka Boksh Bais, Utcher, Pergunnah Kheriaon, Raj Bareilly, and Maipal Singh.
13. Ramadhar and Ramjee Autin Kayath, Rs. 150; surety, Maipal Singh.
14. Gujja Singh Bais and Doulut Mist, Brahmin, Rs. 125; surety, Golab Singh (V. S.)
15. Seetul Singh Bais, Rs. 60; surety, Golab Singh (V. S.)
16. Maipal Singh Bais, Rs. 60; surety, Dirgaj Singh (V. S.) with Maipal Singh.
17. Munna Lodh, Rs. 12; surety, Gungoo Lodh, of Maharajpoor, with Maipal Singh.
18. Nirput Singh Bais and Pahlwan Singh Chowan, Rs. 100 surety, Golab Singh (V.S.)
19. Ashursee Lal Kyath, Rs. 100; surety, Maipal Singh.
20. Lal Bahadoor Singh Bais, Rs. 60; surety, Golab Singh (V.S.)
21. Munee Ram Brahmin, Rs. 60; surety, Goolah Singh (V.S.)
22. Bujrung Singh Bais and Chundee Lodh, Rs. 60; surety, Goolab Singh (V. S.)

JEEA KHERA.

1. Gehuwa Bikharee Nooneeal, Rs. 70; surety, Muhesh Boksh. Tested from Tehsildar as worth Rs. 5,000.
2. Kashee and Gungoon Lodhs, Rs. 70; surety, ditto.
3. Cheeloo and Mukooa Lodhs, Rs. 70; surety, ditto.
4. Ouseree Maipal, &c., Lodhs, Rs. 70; surety, ditto.
5. Buldee and Seetulooa Lodhs, Rs. 70; surety, ditto.
6. Gungadeen Doorga, &c., Lodhs, Rs. 70; surety, ditto.
7. Bhowanec Lodh, Rs. 70; surety, ditto.
8. Seetul Lodh, Rs. 70; surety, ditto.

9. Dyal and Chinno Lodh, Rs. 70; surety, Muhesh Buksh.
10. Puncum Nooneeah, Rs. 130; surety, ditto.
11. Muttoora Misr, Rs. 140; surety, ditto.
12. Kampta Bunneah, Rs. 140; surety, ditto.
13. Gungadeen and Budul Nooneeahs, Rs. 70; surety, ditto.
14. Becha and Ram Buksh Nooneeahs, Rs. 70; surety, ditto.
15. Zalim Singh Chowhan, Rs. 470; no sureties. Own recognizance.
16. Muhesh Buksh for miscellaneous distribution, Rs. 175, on own reeognizance.

BELASPOOR.

1. Muttarooa and Dyal Lodh, Rs. 60; sureties, Bowra and Lucktoo.
2. Ramdeen Bukshee, &c., Lodhs, Rs. 50; sureties, Bowra and Lucktoo.
3. Doorga and Gungooa Lodhs, Rs. 60; sureties, Bowra and Lucktoo.
4. Chundee and Sookhee, &c., Lodhs, Rs. 60; sureties, Bowra and Lucktoo.
5. Sheodeen, Lodh, Rs. 60; sureties, Bowra and Lucktoo.
6. Laloooa and Mungnee, Aheers, Rs. 60; sureties, Bowra and Lucktoo.
7. Poorun and Ramdeen Lodhs, Rs. 60; sureties, Bowra and Lucktoo.
8. Kampta Lodh, Rs. 60; sureties, Bowra and Lucktoo.
9. Buehoo Lodh, Rs. 60; sureties, Bowra and Lucktoo.
10. Goordeen and Deena Lodhs, Rs. 55; sureties, Bowra and Lucktoo.
11. Goordeen Lodh, Rs. 55; sureties, Bowra and Lucktoo.
12. Khooshyal and Beehoo Lodhs, Rs. 55; sureties, Bowra and Lucktoo.
13. Munneer Ahcer, Rs. 50; sureties, Bowra and Lucktoo.
14. Dhoukul Lodh, Rs. 50; sureties, Bowra and Lucktoo.
15. Motec and Purshun Lodhs, Rs. 60; sureties, Bowra and Lucktoo.
16. Bowra, Rs. 55, for miscellaneous, on his own recognizance.

BHOOREEHAR.

1. Sookha and Koilee Lodhs, Rs. 130; surety, Maipal Singh.
2. Lala and Sookha Lodhs, Rs. 75; surety, Maipal Singh.
3. Risal and Budul Lodhs, Rs. 110; sureties, Maipal Singh and Goonoo Lodh, of Bhogeyta, Pergunnah Muggrayer, Oonao. Tested from Tehseel as worth Rs. 25.
4. Lookhye Lodh, Rs. 70; sureties, Maipal Singh and Koilee Lodh. No referencee.
5. Sudhun Lodh, Rs. 80; surety, Goolab Singh (V. S.)
6. Goonoo Lodh, Rs. 65; surety, Maipal Singh.
7. Muteyee Lodh, Rs. 65; sureties, Maipal Singh and Goonnoo Lodh (V. S., No. 3.)

OPPI AND JOP STORE LOCAL SALT WORKS.

8. Muckkoo Lodh, Rs. 50; sureties, Maipal Singh and Lala Chowkeedar, of Mullowna, declared by Tehseel not worth more than Rs. 25.

9. Bhola Lodh, Rs. 50; sureties, Maipal Singh and Goonoo Lodh (V. S., No. 3.)

10. Buleen Lodh, Rs. 50; surety, Maipal Singh Barmadeen, Brahmin, of Sella, Pergunnah Behar, Oonao. Tested by Tehseel as worth Rs. 50.

11. Gungadeen Brahmin, Rs. 50; surety, Maipal.

12. Kalka Lodh, Rs. 50; sureties, Maipal and Nurmadeen (V. S., No. 10.)

13. Matadeen Lodh, Rs. 50; sureties, Maipal and Bughbar, Brahmin, of Sella, Pergunnah Behar, Oonao. Tested by Tehseel as worth Rs. 50.

14. Lullava Lodh, Rs. 50; sureties, Maipal Singh and Goonoo Lodh (V. S., No. 3.)

15. Sheedeen Lodh, Rs. 50; sureties, Maipal Singh and Lokhyee Lodh, of Kalknepore, of Azampore, Pergunnah Behar, Oonao. No reference.

16. Poojore Lodh, Rs. 50; sureties, Maipal Singh and Muttoora Brahmin, of Kulliampore, Pergunnah Patna, Oonao. No reference.

17. Khemza Lodh, Rs. 50; sureties, Maipal Singh and Koilee Lodh, Mahatjipoor, Pergunnah Purnya, Oonao. No references.

NARNEPAA.

1. Mykoo Lodh, Rs. 45; surety, Maipal Singh and Dhunow Lodh, of Bilsingh Khetra, Pergunnah Purnya, Oonao. Tested by Tehseel for Rs. 50.

2. Chirumjoo Lodh, Rs. 45; sureties, Maipal Singh and Dhunow Lodh, of Bilsingh Khetra, Pergunnah Purnya, Oonao. Tested by Tehseel for Rs. 50.

3. Dhunoo Lodh, Rs. 66; surety, Maipal Singh.

4. Henna Lodh, Rs. 40; surety, Maipal Singh.

5. Thakoor Lodh, Rs. 66; sureties, Maipal Singh and Dhunoo (V. S., No. 1.)

6. Bhowance Lodh, Rs. 46; surety, Maipal Singh.

7. Thakoor Lodh, Rs. 35; surety, Maipal Singh.

8. Buehna Lodh, Rs. 50; surety, Maipal Singh.

9. Koomar Singh Bais, Rs. 65; surety, Maipal Singh.

10. Bijan Singh Bais, Rs. 50; surety, Maipal Singh.

11. Deena Singh Bais, Rs. 65; surety, Maipal Singh.

12. Bhola Lodh, Rs. 50; surety, Maipal Singh.

13. Bharut Singh Bais, Rs. 48; surety, Maipal Singh.

14. Chooron Lodh, Rs. 50; surety, Maipal Singh.

15. Lala Lodh, Rs. 60; sureties, Maipal Singh and Dhunoo.

16. Madho and Guneshee Lodh, Rs. 90; sureties, Maipal and Kazim Ali, of Kusrour, Pergunnah Poorwa, Oonao. No reference to Tehseel.

17. Bhowance Lodh, Rs. 120; sureties, Maipal Singh and Thakoor Lodh, of Richpal Khetra of Mullowna. Tested by Tehseel as worth Rs. 100.

18. Jodha Lodh, Rs. 45; sureties, Maipal Singh and Bhowanee Lodh, of Lala Khera, Pergunnah Behar, Oonao, tested by Tehseel as worth Rs. 25.
19. Puhar Singh Bais, Rs. 100; surety, Maipal Singh.
20. Gokool Singh Chowhan, Rs. 50; surety, Maipal Singh.
21. Gyadeen Brahmin, Rs. 50; surety, Maipal Singh.
22. Sookoorwa Lodh, Rs. 50; sureties, Maipal and Gakool Singh, Brahmin, of Semree, Pergunnah Kheeron, Roy Bareilly. No reference.
23. Budulwa Koomar, Rs. 40; sureties, Maipal Siugh and Bhowanee Lodh (V. S., No. 18).
24. Nidhan Lodh, Rs. 45; sureties, Maipal Singh and Bhowanee Lodh (V. S., No. 18).
25. Jeurakhur Nooneeah, Rs. 40; sureties, Maipal Singh and Ram Suhai Brahmin, of Nowkhera, Pergunnah Kheerou, Roy Bareilly. No reference.
26. Budul Lodh, Rs. 50; sureties, Maipal Singh and Bhola Lodh, of Bulsingh Khera. No reference.
27. Sookheejee Lodh, Rs. 50; surety, Muhesh Bukshi.
28. Dumra Lodh, Rs. 60; surety, Muhesh Buksh.
29. Kashee Lodh, Rs. 140; surety, Muhesh Buksh.
30. Adheen Singh Bais, Rs. 120; surety, Muhesh Buksh.
31. Lao Lodh, Rs. 80; surety, Rampershad Lodh, of Juggut Khera, Pergunnah Muggurayr, Oonao. Money paid through Mahanund, Putwaree of Juggut Khera, who has filed no security, but given receipts, filed with Cash Account. Aman Singh describes Rampershad as a tenant paying Rs. 66 land revenue, which is realized on the estate. He has two bullocks worth Rs. 15. Knows not what property he may have inside his house.
32. Kalee Lodh, Rs. 85; surety, Bucha Lodh, son of Kashee, of Juggut Khera, brought by Mahanund (V. S.) describes (Kashee) as paying Rs. 13-9 revenue, realized at harvest. Has two bullocks worth Rs. 20.
33. Rampershad Lodh, Rs. 80; surety, Bucha (V. S.).
34. Bulda Lodh, Rs. 60; surety, Debec Lodh of Juggut Khera, through Mahanund. Described as paying Rs. 15, revenue realized on crops.
35. Reotec Lodh, Rs. 80; surety, Thakoor Lodh, through Mahanund. Not traceable in list from Zillahdars.
36. Debee Lodh, Rs. 80; through Mahanund; surety, Rampershad (V. S., No. 31).
37. Kashee Lodh, Rs. 85; surety, through Mahanund Bhola, son of Lula, of Utwut, Pergunnah Muggurayr, Oonao. Described as paying revenue Rs. 5, realized from crops. Has a grove of four beegahs.
38. Ousercee Lodh, Rs. 80, through Mahanund; surety, Fukeera Lodh, of Utwut. Pays Rs. 27-4 revenue. Has four bullocks worth Rs. 30.
39. Bhowanee Lodh, Rs. 65, through Mahanund; surety, Reotec Lodh, of Juggut Khera, pays Rs. 11 revenue, realized from crops.
40. Murdooa Lodh, Rs. 85, through Mahanund; surety, Bhola, son of Ghurreeb, of Utwut. No property traced.

41. Khooshyal Lodh, Rs. 80, through Mahanund and Rampershad (V. S., No. 31).
42. Seetul Lodh, Rs. 65, through Mahanund and Lao Lodh, of Juggut Khera. Not traceable for property.
43. Sewuk Lodh, Rs. 140, through Mahanund; sureties, Rampershad (V. S., No. 31) and Bucha Lodh, of Juggut Khera (V. S., No. 32).
44. Gungabishun Lodh, Rs. 70, through Mahanund; surety, Kalec Lodh, of Juggut Khera. Described as paying Rs. 58 revenue. Has bullocks worth Rs. 40, and a grove and a house.
45. Khurgie Lodh, Rs. 75, through Mahanund; surety, Rampershad (V. S., No. 31).
46. Mukhuna Lodh, Rs. 70, through Mahanund; sureties, Bucha (V. S., No. 32) and Rampershad (V. S., No. 31).
47. Ouserec Lodh, son of Mireyee, Rs. 70, per Mahanund; surety, Bhola, son of Lala (V. S., No. 37).
48. Nokhooa Lodh, Rs. 70, per Mahanund; surety, Rampershad (V. S., No. 31).
49. Mukuna, son of Nunke Lodh, Rs. 70, per Mahanund; surety, Cluitoo Lodh, of Utwut. Possesses a grove of four beegalis. Mukuna pays revenue of Rs. 45 realized from crops. Has a bullock and a buffalo worth Rs. 10.
50. Khoosal Lodh, Rs. 80, per Mahanund; surety, Bhola (V. S., No. 37).
51. Dyal Lodh, Rs. 75, per Mahanund; surety, Nukooa Lodh. Pays Rs. 15-4 revenue realized from crops. Has no other property.
52. Ouserec, son of Bikharee Lodh, Rs. 50, per Mahanund, who is surety. No property traced.

CHURKAHA.

1. Purshun Nooneeah, Rs. 60; surety, Maipal Singh.
2. Bukhtawur Nooneeah, Rs. 164; surety, Maipal Singh.
3. Kampta Nooneeah, Rs. 50; surety Maipal Singh.
4. Ramdeen Nooneeah, Rs. 70; surety, Maipal Singh.
5. Seetul Nooneeah, Rs. 70; surety, Maipal Singh.
6. Lala Nooneeah, Rs. 60; surety, Maipal Singh.
7. Hunooman Nooneeah, Rs. 70; sureties, Maipal Singh and Gunesh Nooneeah, of Goolureea. No reference.
8. Seetul, son of Chega Nooneeah, Rs. 150; surety, Maipal Singh.
9. Sutnarain Bais, Rs. 120; surety, Maipal Singh.
10. Bodhee and Kaloo Nooneeahs, Rs. 120; sureties, Maipal Singh and Seetul (V. S., No. 8). No property traced.
11. Holbul Nooneeah, Rs. 73; sureties, Maipal Singh and Seetul (V. S., No. 8).
12. Gungadeen Nooneeah, Rs. 72; sureties, Maipal Singh and Seetul (V. S.)
13. Chinta Nooneeah, Rs. 70; Maipal Singh and Seetul (V. S., No. 8).
14. Gunesh Nooneeah, Rs. 50; surety, Maipal Singh.
15. Roshun Singh Bais, Rs. 74; surety, Maipal Singh.

16. Oree Nooneeah, Rs. 70; sureties, Maipal Singh and Purshun Nooneeah, of Purwapoer. No property traced.
17. Rughoo Nooneeah, Rs. 70; sureties, Maipal Singh and Purshun, of Purwapoer (V. S., No. 8).
18. Binda Nooneeah, Rs. 140; sureties, Maipal Singh and Gunesh Nooneeah, of Goolureea. No property traced.
19. Buchoo Nooneeah, Rs. 140; sureties, Maipal Singh and Gunesh Nooneeah, of Goolureea.
20. Gunnesh, son of Busawan Nooneeah, Rs. 70; sureties, Maipal Singh and Seetul son of Sheodeen Nooneeah of Purwapoer. No property traced.
21. Doorga Nooneeah; Rs. 70; surety, Maipal Singh.
22. Lala Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul (V. S., Nos. 8 and 10).
23. Seetul, son of Goolzar Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul (V. S., Nos. 8 and 10).
24. Gokool Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul (V. S., Nos. 8 and 10).
25. Budul Nooneeah, Rs. 70; sureties Maipal Singh and Seetul (V. S., Nos. 8 and 10).
26. Matabadul Nooneeah, Rs. 63; surety, Maipal Singh.
27. Jeea Lal Nooneeah, Rs. 50; sureties, Maipal Singh and Seetul, son of Sheodeen of Purwapoer. No property traced.
28. Gunnesh, son of Bhodee Nooneeah, Rs. 70; surety, Maipal Singh.
29. Ramdeen Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul, son of Chegu. No property traced.

PARWAPPOOR.

1. Gunnesh Nooneeah, Rs. 70; surety, Maipal Singh.
2. Reotee Nooneeah, Rs. 200; surety, Maipal Singh.
3. Oree Nooneeah, Rs. 145; sureties, Maipal Singh and Seetul, son of Chegu. No property traced.
4. Lala, son of Nohuri Nooneeah, Rs. 60; sureties, Maipal Singh and Oree Nooneeah.
5. Jookhoo, son of Nohuri Nooneeah, Rs. 60; sureties, Maipal Singh and Oree Nooneeah.
6. Lala, son of Jhaur Nooneeah, Rs. 60; sureties, Maipal Singh and Doorbil Singh of Bijowra, Behar, Oonao. Seems to be reported from Tehseel under name of Durshun Singh, as worth Rs. 50.
7. Buchoo Nooneeah, Rs. 70; sureties, Maipal Singh and Ramdeen Nooneeah.
8. Doorga Nooneeah, Rs. 90; sureties, Maipal Singh and Reotee Nooneeah.
9. Puryag Nooneeah, Rs. 90; sureties, Maipal Singh and Bukhtawur Nooneeah.
10. Fuiteh Nooneeah, Rs. 80; sureties, Maipal Singh and Purshun Nooneeah.
11. Sabibdeen Nooneeah, Rs. 60; surety, Puhlwan Singh Bais, of Siriapoer, Behar, Oonao. Reported as worth Rs. 100.
12. Lala, son of Budul Nooneeah, Rs. 100; sureties, Maipal Singh and Jewrakhun Nooneeah.

13. Jokhoo Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul Nooneeah.
14. Oodwut Nooneeah, Rs. 100; sureties, Maipal Singh and Reotee Nooneeah.
15. Heera Nooneeah, Rs. 110; sureties, Maipal Singh and Bukhtawur Nooneeah.
16. Busawun Nooneeah, Rs. 110; sureties, Maipal Singh and Bukhtawur Nooneeah.
17. Doorga Nooneeah, Rs. 200; sureties, Maipal Singh and Bukhtawur Nooneeah.
18. Budlee Nooneeah, Rs. 80; sureties, Maipal Singh and Jokhun Nooneeah.
19. Jokhoo, son of Jhugroo, Rs. 70; sureties, Maipal Singh and Jokhun Nooneeah.
20. Lahouree Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul Nooneeah.
21. Mereyee Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul Nooneeah.
22. Chutta Nooneeah, Rs. 120; sureties, Maipal Singh and Seetul Nooneeah.
23. Dowlut Nooneeah, Rs. 70; sureties, Maipal Singh and Lala Nooneeah.
24. Sookha Nooneeah, Rs. 100; sureties, Maipal Singh and Budalee Nooneeah.
25. Hoolasee Nooneeah, Rs. 70; sureties, Maipal Singh and Seetul Nooneeah.
26. Muhungoo Nooneeah, Rs. 60; sureties, Puhwan Singh (V. S., No. 11).
27. Kumpta Nooneeah, Rs. 70; sureties, Maipal Singh and Purshun Nooneeah (V. S., No. 10).

GOOLUREEA.

1. Bhodee Nooneeah, Rs. 80; surety, Maipal Singh.
2. Jokhun Nooneeah, Rs. 100; surety, Maipal Singh.
3. Byjoo Nooneeah, Rs. 90; surety, Maipal Singh.
4. Parum Sookh Nooneeah, Rs. 60; surety, Maipal Singh.
5. Gunesh Nooneeah, Rs. 75; surety, Maipal Singh.
6. Odee Nooneeah, Rs. 60; surety, Maipal Singh.
7. Lowwa Lodh, Rs. 60; surety, Maipal Singh.
8. Thakoor Lodh, Rs. 50; surety, Maipal Singh.
9. Laoor Bukhtawur, &c., Lodh, Rs. 110; surety, Maipal Singh.
10. Thanoo and Madaree Lodh, Rs. 60; surety, Maipal Singh.
11. Dheywa Lodh, Rs. 60; surety, Maipal Singh.
12. Keseyree Nooneeah, Rs. 74; surety, Maipal Singh.
13. Thakoor Lodh, Rs. 60; sureties, Maipal Singh and Bhola Lodh, of Pursura, Pergunnah Punhun, Oonao. No reference.
14. Ramdass Nooneeah, Rs. 70; surety, Maipal Singh.
15. Khoshyal Nooneeah, Rs. 60; sureties, Maipal Singh and Jokhoo Nooneeah, of Sheobuksh Khera. No reference.

16. Budul Nooneeah, Rs. 60; sureties, Maipal Singh and Jokhoo Nooneeah, of Sheobuksh Khera. No reference.
17. Bheeka Nooneeah, Rs. 60; sureties, Maipal Singh and Jokhoo Nooneeah, of Sheobuksh Khera. No reference.
18. Purshad Nooneeah, Rs. 115; sureties, Maipal Singh and Gunnesh Nooneeah, of Goolureea. No reference.
19. Dhowkul Nooneeah, Rs. 100; sureties, Maipal Singh and Boodhee Nooneeah. On reference, is declared worth Rs. 100.
20. Ramdeen Nooneeah, Rs. 70; sureties, Maipal Singh and Boodhee Nooneeah. On reference, is declared worth Rs. 100.
21. Bhola Nooneeah, Rs. 86; sureties, Maipal Singh and Jokhun Nooneeah, of Nibheea Pergunnah Punhun, Oonao. No reference.
22. Sheopershad Nooneeah, Rs. 70; sureties, Maipal Singh and Jokhun Nooneeah, of Nibheea Pergunnah Punhun, Oonao. No. reference.
23. Jokhun Nooneeah, Rs. 145; surety, Maipal Singh.
24. Oree Nooneeah, Rs. 70; sureties, Maipal Singh and Gunesh (V. S., No. 18.)
25. Debee Nooneeah, Rs. 170; sureties Maipal Singh and Dewhlul Singh Bais, of Bijoura, Behar, Oonao (V. Purwapor, No. 6.)
26. Jokhun and Ramdeen, son of Jhami Nooneeah, Rs. 62; surety Maipal Singh.
27. Jewrakhun Nooneeah, Rs. 50; surety, Maipal Singh.
28. Bhola and Ramdeen, son of Boodee Nooneeah, Rs. 120; surety, Maipal Singh.
29. Pubbo Nooneeah, Rs. 70; surety, Maipal Singh.
30. Binda Nooneeah, Rs. 70; surety, Maipal Singh.
31. Lala Nooneeah, Rs. 70; surety, Maipal Singh.
32. Gungadeen Nooneeah, Rs. 70; sureties, Maipal Singh and Lala Nooneeah, of Lukhmudeh, Pergunnah Poorwa, Oonao. No. reference.
33. Goorbuksh Nooneeah, Rs. 80; sureties, Maipal Singh and Lala Nooneeah, of Lukhmudeh, Pergunnah Poorwa, Oonao. No reference.
34. Biuda and Sheopershad, Rs. 120; sureties, Maipal Singh and Jokhun (V. S. No. 21.)
35. Doorjuni Nooneeah, Rs. 60; surety, Puhlwani Singh, Chuttree of Sirreyapoar, Pergunnah Behar, Oonao. Declared worth Rs. 100 (V. S., Purwapore, Nos. 11 and 26.)
36. Buldeo Nooneeah, Rs. 60; surety, Puhlwani Singh Chuttree, of Sirreyapoar, Pergunnah Behar, Oonao. Declared worth Rs. 100 (V. S., Purwapore, Nos. 11 and 26.)
37. Bindla Aheer, Rs. 60; surety, Puhlwani Singh Chuttree, of Sirreyapoar, Pergunnah Behar, Oonao. Declared worth Rs. 100 (V. S., Purwapore, Nos. 11 and 26.)
38. Ajrail Nooneeah, Rs. 80; sureties, Maipal Singh and Lala Nooneeah (V. S., No. 32.)
39. Gunga Nooneeah, Rs. 65; sureties, Maipal Singh and Purshun Nooneeah (V. Purwapor, No. 27.)
40. Kaloo Nooneeah, Rs. 55; sureties, Maipal Singh and Purshun Nooneeah (V. Purwapor, No. 27.)

41. Lala, son of Man Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul, son of Chigu.
42. Lala Singh Bais, Rs. 88; sureties, Maipal Singh and Seetul, son of Chigu.
43. Gooroo Nooneeah, Rs. 50; sureties, Maipal Singh and Surubjeet Singh Bais, of Hummeerpore, Pergunnah Behar, Oonao. Tested for Rs. 75.
44. Gunga, son of Sheobuksh Nooneeah, Rs. 50; sureties, Maipal Singh and Surubjeet Singh Bais, of Hummeerpore, Pergunnah Behar, Oonao. Tested for Rs. 75.
45. Budul Nooneeah, Rs. 98; sureties, Maipal Singh and Doorbul Singh (V. S., No. 25.)
46. Doorga Nooneeah, Rs. 50; surety, Maipal Singh.
47. Sookdeen Singh Chuttree, Rs. 120; surety, Puhlwan Singh (V. S., No. 35.)
48. Mundwa Lodh, Rs. 60; surety, Puhlwan Singh (V. S., No. 35.)
49. Buchoo Brahmin, Rs. 70; surety, Maipal Singh.
50. Debee Gholam Brahmin, Rs. 242; surety, Maipal Singh.
51. Rambuksh Noonceah, Rs. 50; sureties, Maipal Singh and Ramdass Nooneeah, of Sheobuksh Khera, Pergunnah Puhun, Oonao. Tested for Rs. 15.
52. Huhnooman Nooneeah, Rs. 80; sureties, Maipal Singh and Ramdass Nooneeah, of Sheobuksh Khera, Pergunnah Puhun, Oonao. Tested for Rs. 15.
53. Jeea Lall Nooneeah, Rs. 60; surety, Maipal Singh and Gunesh, son of Boodee Nooneeah, of Goolureea. No reference.
54. Budul Nooneeah, Rs. 60; sureties, Maipal Singh and Doorbul Singh (V. S., No. 25.)
55. Bikharee Nooneeah, Rs. 50; sureties, Maipal Singh and Budlee Nooneeah, of Banpoora, Pergunnah Mowrawun, Oonao. No reference.
56. Shitab Rae Kayath, Rs. 60; surety, Puhlwan Singh (V. S., No. 35.)
57. Gunga Nooneeah, Rs. 71; surety, Maipal Singh.
58. Kaloo Nooneeah, Rs. 60; sureties, Maipal Singh and Lala, son of Doorga Nooneeah, of Sheobuksh Khera, Pergunnah Puhun, Oonao. No reference.
59. Lala, son of Doorga, Rs. 130; surety. Maipal Singh.
60. Thakoor Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul, son of Shewdeen Nooneeah, of Purwapor. No reference.
61. Bheiron Nooneeah, Rs. 60; sureties, Maipal Singh and Boodce, son of Jurriur (V. S., No. 19.)
62. Buchoo and Mulwa Lodhs, Rs. 60; sureties, Maipal Singh and Doorbul Singh (V. S., No. 25.)
63. PUNCHUM NOONCEAH, Rs. 60; sureties, Maipal Singh and Doorbul Singh.
64. BHAGOO NOONCEAH, Rs. 60; sureties, Maipal Singh and Doorbul Singh.
65. MOTEE NOONCEAH, Rs. 70; sureties, Maipal Singh and Gunesh (V. S., No. 53.)

OUDH AND JOUPORE LOCAL SALT WORKS.

66. Budlee Nooneeah, Rs. 50; sureties, Maipal Singh and Gunesh (V. S., No. 53.)

67. Budlee Kayath, Rs. 60; sureties, Maipal Singh and Seetul Purshad, of Akumpoor, Pergunnah Behar, Oonao (realized.)

68. Luckoo Nooneeah, Rs. 60; sureties, Maipal Singh and Ram Dass Nooneeah (V. S., No. 51.)

69. Chutta Nooneeah, Rs. 70; sureties, Maipal Singh and Debeedeen, son of Budloo Nooneeah, of Goolurcea. No reference.

70. Munna Nooneeah, Rs. 60; sureties, Maipal Singh and Seetul, son of Chegu.

71. Gunesh Nooneeah, Rs. 60; sureties, Maipal Singh and Lala, son of Bore, of Luckmuddee Mow (V. S., No. 32.)

72. Mireyee Nooneeah, Rs. 60; sureties, Maipal Singh and Jokhun, son of Mireyee Nooneeah, of Sheobuksh Khera (V. S., No. 16.)

73. Gungadeen Nooneeah, Rs. 70; sureties, Maipal Singh and Ram Dass (V. S., No. 51.)

74. Bodee Nooneeah, Rs. 120; sureties, Maipal Singh and Bukhitarwur (V., Purwapor, Nos. 16 and 17.)

75. Khiteyee Singh Thakoor, Rs. 60; surety, Puhlwani Singh (V. S., No. 25.)

NARAINPOOR

1. Dooluwa Lodhi, Rs. 50; sureties, Maipal Singh and Khooshyal Lodh, of Pursurra, Pergunnah Punhun, Oonao. No reference.

2. Khooshyal Lodh (V. S., No. 1.) Rs. 70; surety, Maipal Singh.

3. Bhowanee Lodh, Rs. 67; sureties, Maipal Singh and Khoshyal (V., No. 1.)

4. Churun Nooneeah, Rs. 215; own recognizance. Rs. 5 recovered.

5. Hunooman, son of Gunga Nooneeah, Rs. 90; surety, Churun (V., No. 4.)

OONCIWA.

1. Budul and Bhowan Lodhs, Rs. 25; sureties, Khooshal Singh and Thakoor Singh of Poorundurpoor, Pergunnah Punhun, Oonao, lumberdars. No reference.

2. Thakoor Lodh, Rs. 30; sureties, Khooshal Singh and Thakoor Singh, of Poorundurpoor, Pergunnah Punhun, Oonao, lumberdars. No reference.

3. Seeta Ram Brahmin, Rs. 20; own recognizance.

MISCELLANEOUS.

Rs. 2,411 to Maipal Singh to be realized as salt is sold. No bond.

Churun Nooneeah, of Narainpoor, Rs. 53; to Maipal Singh, to be realized as salt is sold. No bond.

Seetul Nooneeah, Rs. 200 (recovered), to get men in.

OUHD AND JOUNPORE LOCAL SALT WORKS.

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ANNEXURE E.

Abstract of Receipts and Disbursements from commencement of work to 30th June 1870.

	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Received from Treasury on account of Thucarwo*	26,000 0 0	26,000 0 0	26,000 0 0	26,000 0 0	26,000 0 0	26,000 0 0	26,000 0 0
Buildings†	3,000 0 0	3,000 0 0	Buildings, i. e., houses, offices, &c.	3,000 0 0	Boundary wall and gates, &c.	3,000 0 0	1,971 7 0
Duty on Salt ...	...	...	Enclosure and ditch round Store-huts	...	Roads, &c.	3,154 14 0	3,154 14 0
Royalty ...	...	...	Construction of 12 guard posts	...	...	146 4 3	146 4 3
Cess for cost of Establishment ...	...	...	Experimental Salt Works ...	...	...	18 6 0	18 6 0
Thucarwo received ...	...	3,134 0 0	3,134 0 0	3,134 0 0	Pay of Establishment	3,771 15 6	3,771 15 6
Pay of Establishment	...	...	Contingencies ...	...	Payments to Treasuries ...	279 2 5	279 2 5
Contingencies ...	...	...	...	...	...	29,264 2 4	29,264 2 4
Total ...	...	...	...	...	Total ...	...	64,675 7 3
Grand Total ...	...	...	...	...	Balance ...	...	773 13 0
	65,449 4 3	65,449 4 3			Grand Total ...	...	65,449 4 3

• Sum sanctioned Rs. 35,000

3.010

That Indence is from the Tuervoo Account, and the whole of this amount was returned to the Treasury in the following month.

Note on the Kurour Salt Works.

1. These are situated in pergannah Moongra, of Jounpoor, on Site of works. lands belonging to five villages, viz., Muraou, Kurour, Muhendroo, Chitaon, and Tigrá. Muraou is said to produce the best salt: the quality of the produce of the others following the order in which the names are ranged.

2. The lands have been enclosed by a triple row of stakes, Now enclosed. filled in with brush-wood, about eight feet in height and $2\frac{1}{2}$ in breadth. The enclosure, which is about $1\frac{1}{2}$ miles long, by one wide, forms an irregular pentagon.

3. The space enclosed is said to be capable, if fully worked, Estimated out-turn. of turning out from two to two and a half lakhs of maunds of edible salt, and, with these, from one to one and a quarter lakhs of maunds of sulphate of soda.

4. The process by which these substances are made is the Process of manufacture. common "Seenchan" or irrigation method.

5. The tract is thickly dotted with low mounds, remains of Physical configuration of ancient works, and, seen from the only high ground in the neighbourhood, it conveys the idea of ravine, undulating ground. It is, however, in reality, simply a low-lying plot on which these hummocks have gathered in course of years as saline manufactures went on; and it labors under the disadvantage of being exactly the centre towards which the drainage of a considerable area gravitates, so that, from the time the periodical rains set in, until the cold season is somewhat advanced, it is usually well under water. At the time of my visit (August) it was completely flooded, and in the south-eastern corner, in a space known as the "Chândâ," the water was said to be beyond a man's depth.*

6. This tendency to flooding, by the obstacle which it opposes to intramural storage, is a very serious disadvantage; either the produce must be sold off before the rains set in (practically an impossibility), or it must be stored outside the enclosure. There is no suitable space immediately outside, where the land is a mere rice swamp, the nearest available place being the rising ground upon which we have built a house, and where we may readily store in pits any quantity of salt which we are likely to see made. But this site is about a mile from the exit gate of the enclosure, and there is the cost of carriage to the owners, and that of safe custody to the department, to be considered. As far as our present experience goes, the former is likely to run about five pies per maund, the latter, involving as it will the drawing upon our local establishment during the working season for a double guard, is rather a serious hindrance, from which, however, no escape is possible. By common consent of all experts, storage within the enclosure is not to be thought of, pits dug there even on the mounds, would, it is asserted, be flooded. During the rains our difficulty would be over, for, with nothing within the barriers with watch over which we need concern ourselves, it would be easy to concentrate our force on the ground where we had an interest at stake. The end will be that we shall have another enclosure to build round what will be our storage ground.

7. In bygone times this difficulty was not felt. The The difficulty of storing produce of the tract was in demand; most of it sold as it was made, and the makers conveyed away to their own houses any balance of stock remaining unsold. This is palpably inconsistent with our present system.

* According to local residents, this is the common condition of the tract during a series of fair rains.

11. Without lengthening this Note by inclusion of details on which Mr. Ray has already reported, I will address myself to consideration of four principal questions, *viz.*—

Four questions discussed in present Note.

1st.—The cost of the salt to the maker;

2nd.—The price at which it may be expected to sell;

3rd.—The character of the produce;

4th.—The prospect of being able to carry out this experiment of re-opening salt works without entailing cost upon the State.

12. The first of these questions, *viz.*, the cost of making salt, it is impossible to answer with any degree of precision. No theory can be founded on the results of the season just ended, for no one has cleared his expenses; and, during thirty-three years of disuse, during which most of the old skilled hands have died out, the memory of everything connected with the processes has all but lapsed, while the general advance in price of commodities and of labor would render even the most precise details of past cost, were such available, of but slender reliability as a present guide. Nor is much to be gained by cross-questioning such witnesses as are now procurable; for, to begin with, it was not in times past their habit to perplex themselves with minute calculations such as European modes of business dictate. To refer each item of expenditure to its influence on the general out-turn, to try back over all these until the precise incidence of cost on each maund of produce was acquired, was not in them; and as long as their trade fed and clad them, they were not likely to trouble themselves about much else, and among those of the present time, not only have we much real ignorance to contend with, but their determination to exaggerate every item of expenditure prevails over all cross-questioning. The estimates herein presented must accordingly be accepted, as they are tendered, with much reserve.

13. Mr. Ray has calculated that salt can be made at six annas per maund.

14. A *punchayut* of Nooncahs which, in despair of arriving at any satisfactory conclusion by direct questioning, I set to determine the matter among themselves, announced as the result of their calculations an estimate of twelve annas per maund.

15. In comparison with these, on neither of which do I rely, holding one to be too low and the other too high, I append a calculation resulting from my own inquiries on the ground.

Calculations of expenses of full working strength of a pan capable of turning out 200 or 240 maunds of salt in a season.

	Rs. A. P.
Four bullocks calculated to last eight years, equal to Rs. 40, taking wear and tear, &c. 5 0 0	
Water plant 2 0 0	
Digging well (household labor). Lime for pan (right of digging kunker) 0 4 0	
Wages of seven laborers for five months 52 8 0	
Expenses of five members of family for five months at one seer of grain per diem, at the rate of 16 seers per Rupee 46 11 0	
Food for four bullocks for five months at one Rupee each per month 20 0 0	
Expenses of brotherhood when making pan <i>pucca</i> 3 8 0	
Sundries 6 9 0	
Interest on advance (taken at Rs. 50) 1 8 0	
Premium to surety 5 0 0	
 Total expenses 143 3 0	

* From this, if Rs. 13.2 be deducted for probable expenses of laborers' wages, the incidence on a mean out-turn of 220 maunds would be reduced to 14 rupees 3 p.

18. This profit, equal to 93·03 per cent., looks tempting enough, but will by no means content the makers, who clamour for a net Rs. 1·14 for their salt, a price which, it is almost certain, they will never be able to secure. The tradition still lingers of the time when, for their better salt, they could get as much as Rs. 2·1 per maund, and they will be but ill-contented with the lower rate, which competition of better salts will impose on their produce if it is to enter the market at all.

19. The old rates appear to have been as follows:—

	S. C.
Salt, first quality, per Rupee	... 19 3 (British.)
" second "	... 33 9 "
" third "	... 48 0* "
Sulphate of soda "	... 96 0 "

20. Now, working out these data, we should arrive at a financial result but little different from that already arrived at. There would be no cartage to pay, and the season's profits might be Rs. 165 against Rs. 148; but not only was the cost of living thirty-three years ago very much less than now, but there were opportunities for extra profits, such as we should carefully bar, so that it may be fairly assumed that in ancient days the benefit to the salt maker, when a large area looked to him as its sole provider, was, in reality, much larger than it can ever now become.

21. In the debtor and creditor account already given, I have put the price of salt at one Rupee per maund, and expect to see it fetch no more all round. When the Assistant Commissioner endeavoured to introduce it to the Badshahpoor traders, although there and by local sales 130 maunds 24 seers were disposed of at an average of Rs. 4·9-8,† buyers in the abovenamed mart appeared promptly to have repented of their bargain, and to be unwilling to give more than Rs. 4 per maund, at which rate the holders of stock refused to sell. And unless buyers will come to the works, the owners of the salt will find themselves obliged to accept the cost of carriage to the nearest mart, an outlay which it might not be easy to recover from already reluctant buyers.

22. Analysis shows the quality of the salt produced in this tract to be much below that turned out either at Noh (the worst of our older salt works), or at the Mullowna Factories of Oudh. The average of chloride of sodium in thirteen specimens of produce from the first-named is 86·41 per cent., that of twelve samples of Mullowna salt is 86·16; but from Kurour the average of twelve parcels is but 60·07, and while at Noh the highest percentage is 99·87, and at Mullowna 94·41, the very best of the Kurour specimens gives only 81·37 per cent. (Annexures I and II). With Sooltanpoor salt ranging up to 96, and Balambha containing 92·00 or more of absolute chloride, not to mention the yet purer Sambhur and Lahore salts, all destined to offer themselves at rates which will cheapen in proportion as railways extend, no one can refuse to see that the prospects of the Kurour produce are anything but hopeful. Indeed, it is manifest that it can expect to enter the market at all only on condition of under-selling the foreign salts by as much as will make amends for its great inferiority, and this is exactly the condition to which so far its producers have shown a great reluctance to accommodate themselves.

* Average 33 seers 8 chittacks.

† Rs. 4·8 per maund for 75 maunds 23 seers of Maron produce; Rs. 4·12 per maund for 10 maunds of Kurour, and Rs. 4·9 per maund for 44 maunds 35 seers of Mahendroo produce, were the prices actually obtained.

23. True, the produce may improve, but not, in my opinion, to any very great extent. The sulphates are unmistakeably abundant, and it is clear that by the "Seenchau" process, only a certain limited percentage of these can be eliminated. It will be possible, by somewhat relaxing one of our rules, to favour in a measure the purification of these local salts; but, at the best, only a slight improvement will thus be effected, and do what we or the makers may, the ultimate result will be that the Kurour salt will remain, by a very considerable percentage, inferior to those western salts now well established in public liking, with which it will have to compete in every market to which it can possibly gain access.

4th Question—Prospect of success.

24. The prospect of being ever able to work this scheme, without extra cost to the State, appears to me absolutely unrealizable. Here, as in Oudh, a great exodus of the classes who formerly made salt has taken place. Remunerative, if distant labor has drawn them away, while those who remain have betaken themselves to agriculture, or to such day-labor as was to be had in the neighbourhood of their homes. Vague stories are current of people who have been written to informing them that the old trade has been revived, and of numbers who are expected to return in consequence; but all these histories are in the last degree untrustworthy, and, in presence of the general discouragement which the coldness of the public towards their produce has spread among those who in any case would have had to bear up against the natural drawbacks of re-establishing a defunct industry, but who expected at least a ready sale for what the conditions of such a re-establishment allowed them to have in readiness, and whose disgust at the reception which their produce has experienced is bitter, I cannot persuade myself that any such influx of labour and capital as will enable us, out of the cess of one anna per maund, to recoup our expenditure can reasonably be looked for.

25. Our sanctioned expenditure is Rs. 1,200 per mensem, equal to Rs. 14,400 per annum. We have not spent as much per mensem so far; but Messrs. Ray, Hardingham, and Ashton are all of one mind as to the full sum being the least which would meet our wants if the work were brisk; and after some local experience, I see no reason to question the opinion of these gentlemen.

26. But to provide at one anna per maund for a yearly expenditure of Rs. 14,400 (leaving, it had better be noted, all cost of buildings, barriers, &c., unprovided for), we must have made and sold 230,400 maunds of salt. To turn out so much at an average of 220* maunds per work, would require 1,047 factories, for which, according to local report, at twelve hands per factory, no less than 12,564 persons must be got together, including owners of works, their families, on whose labor they greatly depend, and hired workmen. Strike off one-third for the undeniable tendency of all with whom just now in course of such inquiries as this we come in contact, to magnify all the requirements of the position, and we still arrive at what is to me the equally hopeless number of 8,376 persons required to make this experiment a financial success. I do not believe that any such number, for any inducement which any sane servant of Government would recommend, will be got together, nor can I

* Mr. Ray and I differ slightly—he going 225 maunds, I going on the replies to my own local inquiries.

find any traces of such a hope among those whose intimacy with the place and its history is greater than mine. About 600 factories seem to have been the largest number ever at work in the days when the salt of these parts in default of better was eagerly taken, and, giving them credit for even 240 maunds per work, their out-turn in the year could not have exceeded a lakh and a half of maunds. If this were their limit when demand was good, when prices were high and restrictions unknown, what reasonable grounds have we for assuming that after thirty-three years of disuse during which, as communications have improved, salts of a higher class have come to dispute the market, and to force the local product to lower its rates in the ratio of its inferiority, they will be found able, under all drawbacks of the existing condition, to turn out eighty thousand maunds, or more than 50 per cent., more than they were accustomed to yield when they had everything their own way? I should be glad to think myself mistaken about this, for no one can less like the idea of the department failing in anything which it has once undertaken; but a conviction is stronger than a wish, and I must not disguise mine that we must give up all hope of making the Kurour works maintain such an establishment as will render it safe to permit their prolonged existence.

27. The conditions, on which alone it seems to me possible to keep these works open, are these,—

- 1st.—That the public should take to buying the salt: to assure or induce towards which condition, the makers must be willing to accept reasonable prices;
- 2nd.—That Government should consent to some loss of revenue in the shape of outlay on establishment;
- 3rd.—That advances should continue to be accorded, and that on conditions which imply a considerable risk of irrecoverability of a large percentage.

28. With the first of these we can have little to do; in point of fact, the less we interfere the better, and such non-interference is not altogether disconnected with the third, as will presently be shown.

29. As regards the second, the following is, it seems to me, the best we can expect:—We have had 339 factories at work, and it may be possible to get as many as 500 a-foot. These 500 may turn out a lakh of maunds, our realization from which would amount to Rs. 6,250. Taking our expenditure at Rs. 14,400, this would leave Rs. 8,150 per annum to be provided by Government, or the cess for establishment must be more than doubled, which the produce simply cannot stand. The above is, supposing the salt to sell readily, which, its quality remembered, is not to be guaranteed.

30. And not only must advances be made, but we must be less timorous about ultimate recovery; must let the owners of works do what best suits them with their produce, and be content to realize in dribs and drabs over considerable spaces of time, whatever we ultimately succeed in recovering. Valid security not being procurable, we must be satisfied to let much of our outlay be virtually unsecured, or must refuse all aid, in which case the experiments will promptly die a natural death.

31. On the disadvantages of thus entangling ourselves in a series of accounts current with a horde of impecunious borrowers, it is needless to enlarge.

Conditions stated on which works can remain open.

First condition.

Second condition discussed.

Third condition discussed.

Our position regarding
advances made is
unsatisfactory:

32. Our position, in respect to those to whom advances have been made, is already far from satisfactory, and, as far as I can yet see, we stand to lose a considerable, if not the larger, portion of the money. Mistakes in the detailed list of securities prepared under my orders, have compelled me to return the papers, and I am thus not yet in a position to present such an analysis as I prepared of those of Mullowna; but such information, as I possess, is not re-assuring, and it becomes needful to expose what appear to me weaknesses in our case as against original borrowers and sureties. But before going further, it will be but fair to the Assistant Commissioner, who has undeniably worked most earnestly to bring this matter to a successful issue, to note that had any previous experience qualified him to gauge accurately the value of securities, and had he, on that, been careful to advance only on unquestionable surety, he would have made no advances at all, and the works would never have started.

Firstly, we have no bonds
from borrowers;

23. *Firstly*, then, we have no bonds from the original borrowers, and consequently, on them, or their property, we possess no legal hold whatever. This suggests the question—may not such a lapse on our part be held to invalidate the security bonds, should it be pleaded that these were given under the natural impression that we had taken legal acknowledgment from the actual borrower?

Secondly, the solvency of
the securities is doubtful.

34. *Secondly*, the solvency of the persons on whose security money has been issued is more than doubtful. In only a few instances was direct reference made to revenue officials to test the competence of the person put forward as surety. At Mr. Ray's request a kanoongo was deputed to his camp by the Moongra Tehsildar, and on his advice security was accepted. He is said to have prepared a list of all persons on whose security money was given, and I have sent for a copy of the document for the chance of its throwing some light on the subject. Here, as at Mullowna, I think it would be well were the matter made over to the District authorities in view to their determining for us who was or was not solvent. We have, for example, over Rs. 4,000 out on the security of one man, Dirgpal Singh, of Muraon, and from all I could learn he is certainly not worth as much.

Amount advanced,
recovered and still
outstanding.

35. We have advanced altogether Rs. 14,350, out of which Rs. 598 have been recovered, leaving Rs. 13,752 in outstanding balance. We have in our keeping about 6,000 maunds of salt, barely worth as many rupees, so that, at best, we have Rs. 7,752 at stake on what is, I cannot help fearing, very shaky security.

36. The cattle and well plant of the owners of works were, at the close of the season, allowed to be taken away on security (executed on unstamped paper) of eight local residents, who agree to produce them in October. The document is completely informal and specifies no number, either of cattle or utensils. But, however objectionable it may have been to lose our physical hold on this property, I confess to not seeing what else was to be done; for the cattle at least could not have been penned in the flooded enclosure, and as things stand, once the error of not taking legal acknowledgment from the actual borrowers was fallen into, it is doubtful if we have done any mischief by releasing, with the air of an act of grace, property which we lacked legal right to retain.

(Signed) F. W. VERE.

NOTE ON THE KUROUR SALT WORKS.

ANNEXURE I.

Twelve bottles containing specimens of Salt from the Mallowa Works sent by the Deputy Commissioner of Customs, Agra.

No.		E. Matter.	Sulphate of Soda.	Common Salt.
1	<i>Sample of the Purwajoor Dawana—</i> "Oree," son of "Dookhee," licensee	...	18.92	80.15
2	<i>Sample of the Kurruntullia Dawana—</i> Bowraj, son of Pershad, licensee	...	7.32	92.06
3	<i>Sample of the Sahibunge Dawana—</i> Daibee, son of Munow, licensee	...	6.71	92.47
4	<i>Sample of the Oonchura Dawana—</i> Bhagoo, son of Jhoornee, licensee	...	25.62	73.98
5	<i>Sample of the Gouluria Dawana—</i> Gunga, son of Mün, licensee	...	16.47	83.02
6	<i>Sample of the Nareopore Dawana—</i> Lalla, son of Dhunnee, licensee	...	5.49	94.41
7	<i>Sample of the Chupkaha Dawana—</i> Lalla, son of Mathadeen, licensee	...	9.76	89.60
8	<i>Sample of the Narainpore Dawana—</i> Bhimanee, son of Koonoo, licensee	...	37.82	61.64
9	<i>Sample of the Puchbhita Dawana—</i> Bhookum, son of Bowraj, licensee	...	4.88	94.41
10	<i>Sample of the Bhoorechar Dawana—</i> Cailee, son of Bhikaree, licensee	...	6.71	92.88
11	<i>Sample of the Jeeah Khera Dawana—</i> Zalum Sing, son of Bnektawar Sing, licensee	2.00	6.10	91.24
12	<i>Sample of the Beaspore Dawana—</i> Goerdeen, son of Gya Deen, licensee	4.00	7.93	87.95

Thirteen bottles containing Salt from the Noh Work sent by the Officiating Collector of Customs, Delhi, in accordance with the Deputy Commissioner's memorandum of the 1st instant.

No.		E. Matter.	Sulphate of Soda.	Common Salt.
1	Mahlub Sur, old salt	...	29.28	69.87
2	Ditto ditto, very old	...	28.06	71.10
3	Ditto ditto, new	...	10.98	88.77
4	Noh Sur	...	Trace	99.87
5	Ditto	...	Trace	99.26
6	Khairla Sur	...	3.66	96.17
7	Ditto	...	Trace	99.16
8	Ditto	...	39.01	60.93
9	Fazilpore	...	13.42	86.30
10	Ferozepore	...	3.05	96.58
11	Oontka	...	30.50	69.05
12	Salahere	...	1.22	97.82
13	Bae	...	10.98	88.36

(Signed) C. J. HICKIE,

Analyst.

The 25th August 1870.

NOTE ON THE KUROUR SALT WORKS.

ANNEXURE II.

Twelve specimens of Salt and Kharee from the Kurour Salt Works forwarded by the Assistant Patrol in charge of the Works, with docket No. 17, dated the 21st instant.

THREE FIRST CLASS SALTS.

No. 1, Sulphate of Soda ...	20.13	Common Salt ...	... 79.73 percent
" 2, "	21.96	" "	... 77.26
" 3, "	18.30	" "	... 81.37

THREE SECOND CLASS SALTS.

No. 4, Sulphate of Soda ...	50.02	Common Salt ...	... 49.32
" 5, "	51.20	" "	... 44.40
" 6, "	41.53	" "	... 51.06

THREE THIRD CLASS SALTS.

No. 7, Sulphate of Soda ...	50.02	Common Salt ...	... 49.32
" 8, "	52.46	" "	... 46.73
" 9, "	46.36	" "	... 53.42

THREE KHAREE AND REFUSE.

E. Moller.

Kharee, No. 10, Sul. Soda ...	6.00	85.40	Common Salt ...	... 7.39
Refuse, " 11, "	4.00	87.21	" "	... 8.21
" 12, "	25.00	60.39	" "	... 13.97

A G R A, }
The 27th August 1870. }

(Signed) C. J. HICKIE,
Analyst.

Kurour Local Salt Works.

Receipts to 30th June 1870.			Rs. A. P.	Rs. A. P.	Rs. A. P.
Government duty	...	...	174 0 0		
Government cess	...	...	3 10 0		
Landholder's royalty	...	...	3 10 0	181 4 0	181 4 0
Charges.					
Fixed Supervision	...	...	133 8 9		
Preventive	...	...	2,214 7 0	2,347 15 9	
Contingencies.					
Travelling allowances	...	...	51 0 10		
Stationery	...	...	103 9 5		
Miscellaneous petty contingencies	...	...	206 6 8	361 0 11	2,709 0 8
House and preventive posts	...	.....	.....		1,469 9 1
Cost of hedge	...	.....	.....		3,371 14 3
Ditch	...	.....	.....		428 7 4
Carting salt to pits	...	.....	.....		159 6 3
Carpenters' work	...	.....	.....		374 6 0
Blacksmiths' "	...	.....	.....		62 0 0
Advances	...	...	.....		8,574 11 7
					14,350 0 0
Recoveries	...	...	.....		22,924 11 7
					539 0 0
Rs.	...	.....	.....		22,385 11 7

Appendix B.

Review of the administration of the Berar Section of the Inland Customs Line for the official year 1869-70.

Important changes in the organization of this section have taken place during the year now under review, and have reduced the prospective outlay from Rs. 11,582* per mensem to Rs. 6,439-8.† As the scheme, in all its details, is now before the Resident, it would be profitless, here, to do more than glance at its ultimate issue.

2. In the present instance, we enjoy, for the first time, the advantage of being able to compare our realizations with those of an entire official year, somewhat, however counterbalanced by the disadvantage, where receipts are in question, of a lowered rate of duty, which regarded at first, as a mere alteration of account, has, in fact, under latest orders, resulted in depriving us, locally, of five annas on every maund of salt admitted into the Assigned Districts. All drawbacks notwithstanding, the income of the year exhibits, however, a sensible increase on that of 1868-69. Salt is, here, our one taxed staple, and the revenue which it has yielded, compared with that of the preceding year, is shown in the annexed table.

YEAR.	Salt.			Miscellaneous.			TOTAL.		
	Quantity.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.		
1869-70	2,32,773	14 12	3,15,008	5 4	3,517	7 11	3,18,525	13 3
1868-69	2,00,193	6 9	3,00,292	8 6	2,508	7 8†	3,02,801	0 2

The increase, in favor of 1869-70, thus amounts to Rs. 15,724 or 5.19 per cent.

3. Had the rate of duty remained, as in 1868-69, at Re. 1.8 per maund, the income would have been Rs. 3,52,676, and the increase would then have risen to 16.47 per cent., and had the arrangements, with provision of which some of the earlier estimates of this office were framed, *viz.*, the recredit from Bombay of all duty there received on salt which ultimately crossed our frontier, been permitted to endure, the revenue of this section would have amounted to Rs. 7,01,836 or 135.17 per cent. above that of 1868-69.

4. The cause of the increase which, despite the untoward influence recorded in paragraph 2, remains in evidence, may be briefly described as the development of demand, as the population of the Assigned Districts has to rely, more and more exclusively, on legalized supplies. In the year now reported on, this extension of demand has resulted in an import of 32,580 maunds (16.27 per cent.) in excess of the quantity on which duty was paid in the preceding year.

BERAR SECTION.

CHANGES

involving reduction of expenditure.

PRELIMINARY REMARKS.
Results, for the first time, compared with those of an entire official year.

Effect of lowered rate of Duty.

FINANCIAL RESULTS.

GROSS REALIZATIONS
compared with those of previous year.

Increase, actual, in Duty on Salt.

and what it would have been had rates of duty remained unaltered,

or had earlier arrangements endured.

cause of increase.

* Exclusive of contingencies.

† The difference of 8 annas between these figures and those of last year's report is due to a subsequent addition to the item of income tax.

REVIEW OF THE ADMINISTRATION OF THE BERAR SECTION

MISCELLANEOUS RECEIPTS.

5. Miscellaneous receipts require but brief notice, for though the increase in 1869-70 is proportionately large (40.23 per cent.) the aggregate is still unimportant. The increase is due to the accident of an unusually large seizure having occurred in one of the sub-divisions.

CHARGES.
Decrease and cause.

6. Charges are somewhat below those of the preceding year; the important economies alluded to in the opening of the present report, having come into effect too late to produce any very marked change in the figures of the year in which they were devised, which are exhibited in the following table:—

YEAR.	Fixed.	Contingent.	TOTAL
1869-70	Rs. A. P. 1,18,789 11 5	Rs. A. P. 9,277 10 5	Rs. A. P. 1,28,067 8 10
1868-69	Rs. A. P. 1,19,391 0 4	Rs. A. P. 15,193 10 7	Rs. A. P. 1,34,583 3 11

Discrepancies in figures explained.

7. Before proceeding further, it will be necessary to explain the difference between the figures this year attributed to 1868-69, and those which appear in the printed report. Charges for that year are now shown at Rs. 1,34,783-3-11 instead of, as formerly, at Rs. 1,28,297-13-11, the difference being Rs. 6,485-6-0. The principal cause of this was a misapprehension on the part of the former Collector of the Division, who failed to bring to account a disbursement of Rs. 6,308-8-0, awarded, as demurrage, to the Great Indian Peninsula Railway Company, for detention of their waggons at the frontier, when the line was first laid down. The balance of difference, Rs. 176-14-0, was occasioned by another omission of Rs. 177, salary on account of Berar, for one month, of the Collector's Office hands, against which had to be set a *per contra* error of two annas, for which this office is itself answerable.

Fixed charges,
their decrease.

8. The decrease in fixed charges, now very trifling, in fact but Rs. 804-10-11, will, during the current year, assume a very different character.

Contingencies,
their decrease.

9. That in contingencies, amounting to Rs. 5,911-0-2, is principally referrible to the absence of the item of demurrage which added so largely to the charges of the preceding year. Some subheadings of charge show small increases, such as Rs. 721-7-11 in travelling charges, due to the Collector having made a tour of the line; and Rs. 620-4-0 in postages, arising from a change of system whereby postage has now to be paid on correspondence of subordinate offices with the Collector. But, charge against charge, the ultimate issue is a decrease, as above noted, in favor of 1869-70.

NET REVENUE

10. Deducting charges from gross realizations, the net income of the Berar Customs Line, together with the proportion which, in the last two years, charges have borne to revenue, will be apparent from the following table:—

YEAR.	Gross realizations.	Charges.	Net Revenue.	Percentage charges on gross realizations.
1869-70	Rs. A. P. 3,18,525 1 3	Rs. A. P. 1,28,067 8 10	Rs. A. P. 1,90,458 4 5	40.21
1868-69	Rs. A. P. 3,02,801 0 2	Rs. A. P. 1,34,783 3 11	Rs. A. P. 1,68,017 12 3	44.51

Decrease of incidence of charges.

11. As already remarked, time has not yet served for the effect of the recent very extensive reductions to be visible, but during the current year a very important change in the incidence

OF THE INLAND CUSTOMS LINE FOR THE OFFICIAL YEAR 1869-70.

of charges will be perceptible; the exact proportion of which, depending upon the reception accorded by the administrations of the Central Provinces and of the Assigned Districts to the departmental proposals, cannot, however, be as yet accurately defined.

12. No alteration whatever has occurred in the course of trade which follows well-defined lines. Entering, to the extent of 99.74 per cent. on the whole imports, by the Railway station of * Mulkapoore, salt is thence distributed, from depôts like Sheagaon and Budnaira, to minor marts throughout Berar.

13. Prices of salt at Budnaira, the principal and very much the most important mart in Berar, appeared to have averaged Rs. 5-2-9 per maund, or about 7 seers 12 chittacks per Rupee. There is considerable difficulty in obtaining accurate returns of retail prices in the interior. Tuhseel reports are open to much suspicion, and this Department has no agency of its own which it could hold responsible for collection of statistics at any distance from the line, while the few towns of importance, such as Naga Dewulgaon and Sindkera, which lie actually on the line, and which draw their supplies from Jaulnah, are too close to the frontier for their rates to be accepted as an indication of prices in the interior. Moreover, notwithstanding the pains taken, when last year's reports were reviewed, to induce the Collector to be careful in the matter of collating prices, it has been a serious disappointment to find his tables disfigured by contradictions so palpable as to deprive them of all claim to confidence.

14. On the surface, an increase of smuggling has become apparent; and in 49 cases, 116 maunds 37 seers 9 chittacks of salt have been confiscated, against 26 maunds 24 seers 10 chittacks in 27 cases in 1868-69. But against this, while in 1868-69, 237 maunds 33 seers 7 chittacks paid double duty in 98 cases, only 67 maunds 10 seers 6 chittacks, in 64 cases, have been subjected to the latter penalty in 1869-70. Therefore, while, in the earlier year, 264 maunds 7 seers 1 chittack of salt came under departmental interference, only 184 maunds 7 seers 15 chittacks have been subjected to penalties in the year under review. The first aspect of affairs finds its explanation in the fact that the Collector of Customs, on the ground that the provisions of the law must by this time be generally known, has begun to recommend the Commissioner of Revenue to award penalties more severe than were considered appropriate as long as the people of the Berars might reasonably be held to be unacquainted with departmental rules. Revision, in all cases of confiscation, or imposition of double duty, by an authority so high in grade as a Commissioner of Revenue, may be held to afford assurance that when, as mostly happens, sanction is accorded, the conclusions on which the original recommendation was grounded, have been valid.

15. The following table shows the penal action of the Department in respect to persons:—

PENAL ACTION
OF THE DEPT.

YEARS.	Total No. of offenders captured by the Department.	RELEASED BY DEPARTMENT.					Sent up for trial.	Acquitted.	Condemned.	Pending at close of report.	Percentage of convictions on persons sent for trial, (see pending above).
		On payment of single duty.	On payment of double duty.	For want of proof.	Total.						
1869-70	138	1	97	8	106	32	13	17	2	53.12	
1868-69	292	6	195	28	229	63	26	37	..	55.73	

* Of 2,81,440 manunds 19 seers 13 chittacks (8,671 tons), 2,30,503 manunds 29 seers 9 chittacks (8,549 tons) went in by Mulkajpoor.

PERSONS.

Number subjected to interference.

Number committed to Criminal Courts.

Apparent causes of unsatisfactory results.

Synopsis of convictions and punishments.

16. The number of persons who have brought on themselves departmental interference during 1869-70 is considerably smaller than in 1868-69, *viz.*, 188 against 292; and out of this number, it is satisfactory to find that our officers were able to dispose of 106, or 76.81 per cent., without resort to the Criminal Courts. Thirty-two persons only were sent for trial; or, in other words, taking the population of Berar at the census figure of two and a quarter millions, only .0014 per cent., or one inhabitant in every 70,000, has been subjected to criminal process at the hands of the Department of Inland Customs. With such statistics in evidence, it cannot be argued that the salt laws weigh heavily on the people of Berar.

17. Of the thirty-two persons committed for trial, thirteen have been acquitted; the results, as regards two, are yet unknown, and seventeen, or 53.12 per cent., have been convicted. This latter result is very far from satisfactory, and would have formed matter for very severe reprehension of the officers by whom the cases were sent for trial, had the Collector not been at pains to show that, in the cases of the twelve out of the thirteen who escaped punishment, there was, to say the least, room for strong difference of opinion. In one case, in which five persons were concerned, this office itself held that prosecution was justifiable, and exposed, in view to prevention of future failure of justice, to the officer by whom the case was decided, its reasons for holding an opinion different to that at which the Court arrived. On the whole, then, there is reason to think that the greater number of our judicial failures have been due to misapprehension by Judicial officers, rather than to inherent defects in the cases, as sent up by the Department; and it must be added that in one respect, the Department is at peculiar disadvantage in Berar, *viz.*, in that our sub-divisions are almost all at such distances from the Courts which try our cases as, added to the difficulties of communication, make it all but impossible for our officers personally to attend at the trial of any important case. The advantage of their presence in a country where the law is new, is palpable; but the conditions under which they are placed, render it, as a rule, unattainable, and our cases depend wholly on written advocacy, and on the evidence of unlettered and not infrequently of unintelligent witnesses.

18. Out of the seventeen persons whose conviction has so far been ascertained, three only have chosen to suffer imprisonment, while fourteen or 82.35 per cent. of the whole number have paid fines, averaging as high as Rs. 21-14-3:—

YEAR.	IMPRISONED IN DEFAULT OF PAYMENT OF FINE.						PAID FINES.																			
	For 0 months.	Above 3 months.	Above 1 month.	Above 15 days.	Above 10 days.	Below 10 days.	Total.	Of Rs. 250 and upwards.	Aggregate paid.	Below Rs. 250, above Rs. 100.	Aggregate paid.	Below Rs. 100 to Rs. 50.	Aggregate paid.	Below Rs. 50 to 30.	Aggregate paid.	Below Rs. 30 to 20.	Aggregate paid.	Below Rs. 20 to 10.	Aggregate paid.	Below Rs. 10 to 5.	Aggregate paid.	Below Rs. 5.	Aggregate paid.	Total fined.	Aggregate paid.	
1869-70...	1	2	3	...	...	1	120	1	120	...	...	2	60	2	40	2	30	3	15	4	12	14	303			
1868-69...	1	1	1	...	...	1	140	1	26	7	125	7	80	18	66	36	442									

19. The Booldana District contains, as the Resident is aware, a natural curiosity, known as the Lonar Lake, of which from the very first installation of the line, the peculiarities attracted

departmental attention and enquiry. Its waters were, to all appearance, distinctly alkaline; their produce, both by local residents and by district authorities, was declared to be merely carbonate of soda, the existence of which, in vastly preponderating measure, was determined by the then Customs Analyst. In six specimens of water he found an average of only 8.66 of common salt and out of the six, the average, in five cases,* was but 3.40. The carbonate of soda which, during the hot season, is extracted by spontaneous solar evaporation (no vats or terraces being used as in ordinary salt works) is exported, mostly to Jaulnah, a small portion only being consumed at Lonar itself in soap and glass making; the glass, thus made, being exclusively devoted to production of the wristlets worn by native women. The right of recovering the carbonate of soda is leased out for a term of three years, by the district authorities, for the sum of Rs. 2,000, and the present contract will expire in November 1871. Such was the information first elicited, and it appeared to warrant freedom from any anxiety, such as the significance of the name "Lonar" had naturally aroused, as to the nature of the produce of this very remarkable locality, and its effect on the salt revenue.†

Results of first enquiries.

Utilization of produce.

Although no cause for anxiety had been revealed.

Observation was nevertheless maintained.

Fresh information thus derived

still serving to point to absence of danger.

until result of general inquiries

led to discovery of a produce containing a considerable proportion of salt.

20. Still, as *some* salt was known to exist in combination, suspicion was not entirely lulled; and our local officers were placed under injunction to watch the working of the Lake and to bring to notice whatever might at any time appear to show that, after all, the alkali, ostensibly its solitary product, might yield more or less of alimentary salt.

21. In November of 1868, Mr. W. Clarke, Assistant Patrol of Rissood, reported that out of a despatch of eleven maunds of alkali he had picked certain crystals, which, on examination, proved to be alimentary salt, of a high quality, closely akin indeed to the celebrated Sambhur salt; and, on inquiry from this office, the same officer stated that these saline particles were but few in number, and not more than about three per cent. of the mass. While this intimation appeared to confirm the previous conviction, that no danger to our revenue was to be apprehended from Lonar, it was still held desirable to obtain a special report, written late in December of 1869, by the officer above named, Mr. W. Clarke. The following information was derived—that the produce of the Lake was divided into three classes, known as "Dhulla Khar," "Papree Khar" and "Bhooskee Khar"; that of these three, the first-named, procured mostly in the cold season, contained about fifteen seers to the maund (37.50 per cent.) of a very pure salt. This estimate was, by the Collector, reduced by one-half, on the ground that only distinct crystals would be edible. No information was

* The sixth specimen was of water contained in a small cistern—the other five being taken from the Lake itself.

† Dr. Warth, our first analyst, a trained scientific man, who has unfortunately been prevented by other pressing avocations from examining specimens, discovery of which has rendered this dissertation necessary, furnishes the following information from a valuable German work, Karsten's *Salinenkunde* (art of salt making):—"Under the mud of this lake, a stratum of carbonate of soda deposits. The water is clear, its specific gravity is 1.0276, or nearly equal to that of the water of the ocean. The water has no disagreeable smell, but the mud is saturated with sulphuric hydrogen." (N. B.—This will account for the unpleasant odour, which ordinary observers attribute to the water itself.) The carbonate accumulates slowly under the mud; it consists of—

Soda	...	...	Na O.	49.9
Carbonic acid	..	..	CO	38.0
Water	...	...	H O	20.6
Insoluble matter	...	...		0.5
Sulphate of soda	...	...	Na O. SO	trace.

*Steps therupon taken,**although temporarily frustrated.**will ultimately enable a decision to be arrived at.*

tendered as to the quantity of Dhulla Khar annually produced; and as this was obviously the first thing requisite to be known, the Collector was told to arrange for weighment, at the post of Sindkhera, in which Customs Subdivision the Lake is situate, of all despatches of Dhulla Khar, and for collection of duty on any excess of salt therein. An objection having been raised by the Commissioner of West Berar, on the score of interferences with the contractor, to our examination at the place above named, the Collector was directed to arrange for mere weighment at Lonar itself, where we had recently stationed a Sub-Assistant Patrol. Unfortunately, by the time this latter order reached the Collector (and with the Commissioner and Deputy Commissioner detained in Rajpootann, and the Collector on tour in one of the most inaccessible portions of his charge, a certain delay was inevitable) the gathering of Dhulla Khar for the season was over; and the opportunity of determining whether the substance should be declared liable to taxation was thus lost.

22. It might be impolitic, and would almost certainly be contrary to the views of the local authorities, to interfere with the terms of the present contract, which, as noted, will expire in November 1871, but between this and then there will be ample leisure to determine by weighment on the spot of every despatch which leaves the Lake, whether ground exists for recommending a modification or, in extremity, withdrawal, of the contract when its term runs out.

HEDGE.

23. No hedge has been raised along this Section; nor will it, as long as any kind of uncertainty as to permanence of present arrangements exists, be advisable to lay upon the now greatly diminished executive the labor (arduousness of which naturally increases as the number of hands available is lessened) of constructing a barrier of the kind, need of which, at the worst, may be held to terminate at about the Lonar Lake, or a very few miles beyond. No public works have been undertaken.

ESTABLISHMENT.*CASUALTIES.**Health of force.*

24. The death-rate of the force has increased, from 1.43 per cent. in 1868-69 to 1.53 in 1869-70. Prevalence of cholera, to which were due twenty-one out of the twenty-three deaths which occurred, will account for the higher percentage. Seven men of the force, two jemadars and five peons, were punished by Criminal Courts for offences, none of which were of a very heinous type; while the Department had no reason whatever to question any of the grounds on which punishment was awarded.

NOTICE OF OFFICERS.

25. For activity in out-door duties, the officers serving on this Section have entitled themselves to be presented to the Resident as, for so much, meriting commendation. The lowest average, per diem, of excursions up and down the Line, that of Mr. A. G. Bradford, who is in charge of the very important Railway post of Mulkapoor, is still respectable, being 7.07 miles, while that of another officer, Mr. W. Clarke, 11.10 miles per diem, would have been excellent over the best ground we have, a description which applies to none of the sub-divisions in Berar. The active work of four other officers,—Messrs. Morley, Emmett, Glen, and Sufdur Ullee (mentioned in the order of amount of work done) is also very good; that of two others, Patrol Ahmed Oollah Khan and Officiating Assistant Patrol Lultapurshad, is very fair. It is to be regretted, however, that, of the European officers enumerated, not one has shown such attention to his office duties, as deducible from his annual report, as justifies this office in commending him without reserve. The public mention of this general shortcoming will, it is hoped, aid towards working a general and greatly needed amelioration.

Appendix E.

Review of the Administration of the Internal Department of the Inland Customs, North-Western Provinces Section, for the Official Year 1869-70.

Beyond simple re-distribution of force in two circles, no change has occurred in the organization of this branch during the year now to be reviewed. Territorial area, population and executive force remain, respectively, at 61,895 square miles, 27,000,000 souls, and 883 officers and men.

2. The realizations of the year, under provisions of Act XXXI of 1861, from all sources, have been Rs. 84,447-15-7, against Rs. 80,790-0-6, showing, in favor of the year under discussion, an increase of Rs. 3,657-15-1, or 4.52 per cent.

3. The following table gives the income under each heading in comparison with the three preceding official years:—

YEAR.	Fees on Licenses.		Fines and Confiscations.		Duty on Salt.		TOTAL.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
1869-70	...	39,475 8 0	162 14 1	44,809 9 6	84,447 15 7			
1868-69	...	45,387 0 0	568 0 1	34,835 0 5	80,790 0 6			
1867-68	...	50,843 0 0	261 5 11	35,929 7 7	87,033 13 6			
Corresponding 12 months of 1866-67	...	42,518 4 0	398 1 11	57,191 5 5	1,00,137 11 4			

4. Annexure A affords details of collections, month by month, for 1869-70 and for the immediately preceding year. The tendency throughout has been mostly towards increase; the realizations of four months only, April, October, January and March, falling below those of corresponding months in 1868-69. In the first of the four, the difference is too insignificant to require notice. In the second named, the decline, mainly in the item of Fees, is clearly to be traced to the unusually heavy rains of the month. Men would be slow to apply for licenses when, for some time to come, it was palpably impossible for them to begin work. In the third instance, fluctuation in the issue of licenses for sulphate of soda, in the circles of Futtelpore and Ghazeepore, was the principal influence; and again, in March, a similar symptom appearing in the Allygurh Circle, brought about the decrease then observable.

5. Annexure B is a comparative return of collections by circles. In connection with the two largest items in the "Decrease" column, it may be noted that the first, for the Allygurh Circle, refers purely to our own refusals to issue licenses, while the second, under Cawnpore, is apparent rather than real, being the result of a re-distribution of area, discussed in para. 72, Appendix I, of the Administration Report for 1868-69, and adopted in view to a more perfect control over tracts known to be dangerous.

INTERNAL DEPT.,
N. W. P.

Internal economy
practically unchanged.

FINANCIAL
RESULTS.

GROSS
REALIZATIONS.

Increase as compared with
1868-69.

COLLECTIONS

analyzed month by month.

REVIEW OF THE ADMINISTRATION OF THE INTERNAL DEPARTMENT

Detail of salt destroyed.

6. Only maunds 84-35-6 of salt have, during the year under consideration, been destroyed as too impure for sale. This quantity, which represents Rs. 254-10-5 of duty, is but 14-55 on the average of three preceding years. The difference in which there is nothing to lament, is perhaps not disconnected with the decidedly bettered condition of the salt-petre trade, of which we have one proof in the larger quantity of salt capable of yielding duty turned out during the year.

Analysis of receipts.

7. During this year while we have lost principally by our own defensive action* (*vide* para. 5) on fees for licenses, a sum of Rs. 5,911-8-0 equal to 13-02 per cent. on the preceding year's receipts, we have gained Rs. 9,974-9-1, or 25-63 per cent. in duty on salt. Fines and confiscations are purely matter of accident, and their entire sum, even at their largest, is always unimportant.

CHARGES.

Percentage on totals of 1868-69.

increase.

Fixed charges.

increase.

Contingencies.

decrease.

8. The charges of 1869-70, of which details are furnished in the following table, amount to Rs. 1,98,005-9-8, being Rs. 20,212-11-9, or 11-36 per cent. in excess of those of 1868-69. Fixed charges exceed those of the latter year by Rs. 23,023-14-3, or 14-42 per cent., while contingencies are less by Rs. 2,811-2-6, or 15-49 per cent. than the corresponding charges of the same year.

* Refers to license.

OF THE INLAND CUSTOMS, N. W. P. SECTION, FOR 1869-70.

YEAR.	FIXED.		CONTINGENCIES.						Grand Total of Charges.
	Supervision.	Prevention.	Total of Fixed.	Travelling allowance other than direct for Deputy Inspectors.	Conveyance of weighing apparatus and lents, &c.	Pay of Peons & Clerk in Hopkinton.	Postage Labels.	Bills of Prisoners.	
	Officers, Deputy Inspectors, Assistant Commissioners and Office.	Men.							
1869-70	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1869-70	33,578 9 7	61,310 6 3	84,730 3 0	1,82,070 2 7	3,141 6 1	1,973 14 7	176 13 10	2,126 7 0	4,113 7 0
1869-70	32,103 10 0	67,512 0 0	70,033 9 7	1,69,655 4 4	1,611 9 10	1,360 5 5	51 12 2	2,943 9 6	31 14 9
1869-70	29,811 11 8	51,051 9 11	66,463 10 6	1,48,260 0 0	810 8 3	838 14 9	...	2,090 8 0	61 1 6
Corresponding month of 1869-70.	29,690 6 6	47,003 9 8	71,100 0 6	1,18,989 16 8	869 10 8	628 11 8	...	1,69 4 6	154 1 9
								972 0 6	18,137 9 7
									1,77,792 13 11
									8,220 16 1
									1,56,480 15 1
									6,076 16 3
									1,55,666 14 11

N. B.—In these Internal Reports, no notice is taken, on either side of the account, i. e., Realizations or in Charges, of Income Tax or Subscriptions to Funds, —hence these figures differ somewhat from those of the Commissioner, in which such items are brought into account.

Increase in Fixed.
explained.

Impossibility of reduction
in Internal Force.

Contingencies.

Fluctuations explained.

Increases.

Decreases.

Increased Scale of pay for
lids comparison with earlier
years.

Net expenditure.

9. The addition to fixed charges represents the developed re-action, in an entire year, of the increased scale of salaries. In 1868-69, there were but seven months brought to account on this higher scale, which has now regulated the outlay of twelve, occasioning a proportionate increment of charge, that year being more expensive, under this heading, by 7.68 per cent. than 1867-68: while 1869-70 is, in turn, more costly than 1868-69 by 14.42 per cent. It will be appropriate here to mention that a most careful scrutiny of the constitution of the Internal Force convinced the Commissioner that in it no reductions of strength were to be thought of.

10. Some fluctuations are discernible in comparison with 1868-69, in the items of which contingent charges are composed. Travelling allowances are in excess by Rs. 1,529-12-3, principally caused by a more lengthened residence in camp, on special duty, connected with establishment of licensed salt works in Jounpoor, of a superior officer (the Assistant Commissioner, Mr. Ray). Conveyance of weighing apparatus, tents, &c., is likewise in excess by Rs. 593-9-2, partly from the cause just mentioned, partly with reference to movements of subordinate officers, and to increasing cost of carriage. Pay of men sick in hospital, an item peculiarly subject to variation, is higher by Rs. 125-1-8, result of a season which, from April to August, was one of unusually intense heat, followed by floods of rain; conditions which could hardly fail to re-act upon the general health of a force, the duties of which entail great exposure. Dieting of prisoners, an item subject to much accident, is more by Rs. 14-8-3. Half fines (rewards to captors of persons convicted of breach of law) are in excess by Rs. 2,842-7-10, in consequence of a change of system, by which sums, formerly derived from the Courts which imposed the penalty, are now drawn in the contingent bills of this Department. On the other hand, *l'ostage*, another of those items which must fluctuate, is less by Rs. 817-2-6 from general causes, too much sub-divided over many offices, for identification. Miscellaneous charges, greatly swelled in 1868-69 by purchase of tents, are less by Rs. 7,099-7-2.

11. The radical difference which the introduction of a higher scale of pay has caused, will render superfluous any comparison with years when lower rates prevailed. The relation which charges bear to income has however to be exhibited in the following table:—

YEAR	Gross Expenditure.		Realizations.		Net Expenditure.		Net Expenditure per mensem.		Percentage of increase or decrease on income.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.		
1869-70	...	1,98,035	9	8	84,447	15	71,13,557	10	234-47	
1868-69	...	1,77,792	13	11	80,790	0	6	97,002	13	220-07
1867-68	...	1,56,450	15	1	87,033	13	6	69,447	1	179-79
Corresponding 12 months of 1866-67	...	1,53,636	14	11	1,00,137	11	4	53,529	3	155-45

12. These figures show a progressive increase in incidence charges, the explanation of which is simple. From 1866-67 to

Increase of charges.
Progressive increase

1868-69, there was continuous depression of income, while, outlay, which in the two earlier years had remained much the same as when realizations were larger, made, in the latter of the three, a considerable advance under increased rates of pay. In 1869-70, those enlarged rates have still influenced the general expenditure, but an increase in income has come to lessen in a measure their natural re-action. It will be noted that the ratio of increase has been checked. In 1867-68, this was 24.34 per cent. greater than in 1866-67, in 1868-69, the comparative increase (with 1867-68) was 40.28 per cent., while in 1869-70, it is but 14.30 over that of the immediately preceding year. If the movement, now for nearly eighteen months perceptible in the saltpetre trade, and which (*vide* para. 29) has led to a very large increase in export of that staple during the official year, be maintained, we may, *subject however to such re-action on the salt market of these provinces as extension of Railway and successful issue of the experiments in local manufacture of salt are not ill qualified to bring about*, look to see the disproportion of internal income to internal charges, the aspect of which to superficial observance is anything but encouraging, abate somewhat in future. But I am bound to acknowledge that in this matter I am not very hopeful, for the influences to which allusion is above made in italics, seem to me very capable of reducing the profits derivable from sale of salt, produced in refining saltpetre, and of stimulating the tendency known even now to exist among all but a few leading firms, to make quantity pay for quality, and to foist off, as saltpetre, as much salt as the mass can conveniently be made to carry. Such a practice, *per se*, is not likely to cause any perceptible injury to the salt revenue.

13. In para. 20 of the last report on the Internal Branch of the Department, endeavour was made concisely to exhibit the real uses of the establishment in question, and the tests by which its value to the State must be gauged. The points then urged were far from novel, but had frequently been advanced, and as frequently accepted by Government as valid. Nevertheless, as embodying the *raison d'être* of an arrangement, always liable to be placed on its defence, a short recapitulation was then ventur'd on, and may, for the same reason, here also be tolerated in the still more condensed form of a reminder that the internal force is our one provision against widespread illicit production of salt, and that its worth lies not in what it directly produces, but in what it prevents.

14. Annexure C presents, in abstract, a table of issue of licenses under Act XXXI of 1861, and of fees realized, together with statistics of increase and decrease, in comparison with 1868-69. Its main features are a considerable increase (1,052) in crude saltpetre works, which, remembering that 1868-69 exceeded its preceding year by a still larger figure, does warrant the idea that the trade is in reality reviving. But, with all the progress of the past two years, we have still little more than half of the factories that were at work in 1862-63 (about 10,000), the difference being debitible to the export duty on saltpetre, against which, from the first, this Department protested. Refineries of saltpetre have also increased by thirteen, but the same reflexion applies, for we had 400, where we have 158. Works for sujhee and russee (forms of carbonate of soda) have declined, from subsidence of demand, to what may be regarded as normal limits. Those for sulphate of soda have retrograded by no motive of their own, but under our determination

explained.

Has been recently elected.

and subject to certain chances.

will perhaps now decline.

PECULIARITIES
OF THE INTERNAL
BRANCH,

briefly noticed.

ISSUE OF
LICENSES.

Crude saltpetre works.

Increase.

Difference due to 1868.

Increase in B. & C. 1868.

Decrease in A. & D. 1868.

Decrease in E. 1868.

not to license this most dangerous and objectionable class of works, except where we have some kind of assurance (at best but feeble) that our trust will not be abused. While on this subject, I may note that facts have come to light, which are now undergoing the most searching test that our resources permit us to apply, and which seem to show that the ineradicable addiction to salt-making of workers of this stamp, will render unavoidable an application of the rigor of our powers, in the shape of extensive refusals to license (see also paras. 5 and 15).

Analysis of issue by circles.

15. Annexure D exhibits details of these issues, for every kind of license, for each circle in the Provinces. The greatest increase in saltpetre works has taken place in Ghazzeppore and Goruckpore, which, between them, account for 803 out of the 1,052 additional licenses of the year. Sulphate of soda works have lessened principally in Allygurh and Cawnpore, with some counterbalance in minor additions to the numbers in other circles.

LICENSES REFUSED.

Decrease in refusals.

CASES OF WORKING WITHOUT LICENSES.

Decrease.

16. Annexure E shows the number of licenses refused in each circle during the year. The total is 835 against 773 in 1868-69. Were it possible to feel fairly assured that the more lenient policy of the latter period had not been abused, there would be legitimate satisfaction in these figures. As already explained (para. 14), there is, however, cause for anxiety in this respect.

17. Annexure F gives also, circle by circle, the number of cases in which saline factories have been discovered working without license, and of commitments to Criminal Courts in consequence. There is a considerable decrease in the latter item in 1869-70, 82 persons having been taken into Court against 129 in the preceding year, on which we may, on the whole, afford to be congratulated.

18. In the statistics of the year connected with illicit manufacture, there is (apart from the as yet unsubstantiated intimations alluded to in paras. 14, 16 and 40) nothing to lead us to think that the practice is gaining ground. Cases, it is true, show a considerable increase (1,069 in 1869-70 against 699 in 1868-69), but this is attributable to an altered and more accurate method of bringing these to account. In quantity of salt seized, and in persons captured, there is a decrease, which now endures from year to year.

19. The appended table gives details connected with seizures for illicit manufacture for 1869-70 and three preceding years.

ILLICIT MANUFACTURE OF SALT

seems not to increase.

Increase in cases

explained.

Decrease in quantity of salt.

and in persons captured.

PENAL ACTION OF THE DEPARTMENT.

Notice of current rumour in connection with the latter class.

OF THE INLAND CUSTOMS, N. W. P. SECTION, FOR 1869-70.

REVIEW OF THE ADMINISTRATION OF THE INTERNAL DEPARTMENT

PERSONS CAPTURED.

Progressive decrease.

result of a more lenient system.

Kinds of seizures.

20. The feature of greatest interest is the number of persons captured by the Department. We have 1,225 in 1869-70, against 1,376 in 1868-69, 1,551 in 1867-68, and 2,922 in 1866-67, or decreases, in respective comparison of results of 1869-70, of 10.91, 21.01 and 58.07 per cent. These represent the effect of the more lenient procedure introduced under Government Order, North-Western Provinces, No. 152 A of 9th October 1867, the influence of which, but partially evident in 1867-68, was better developed in the following year. Beyond noticing the fact that most of our own officers who at first foretold nought but evil from the change, seem, under practical familiarity with its results, to grow reconciled to it--it appears superfluous further to discuss a reform, the beneficial tendencies of which have been fairly proved. No one whose opinion has the slightest weight, would now advocate return to the more rigorous practice of our earlier days. Glancing at the table, it will be seen that the Jompore Circle, where so many of the population are intercute with makers, still holds an evil pre-eminence, yielding, from its comparatively small area of 2,517 square miles, and population of 1,814,815 souls (representing, respectively, about 4.11 and 6.72 per cent. of the area and population with which the Internal Branch is concerned) no less than 49 per cent. of all of those with whom, during the year under review, the Department has been compelled to interfere. The next table shows the kinds of factories, &c., in which seizures have been effected during the year

OF THE INLAND CUSTOMS, N. W. P. SECTION, FOR 1869-70..

NAME OF CIRCLE.	Crude Saltworks.	Refineries.	Kilner Works.	Russia Works.	Sulzer Works.	No. of Seizures.	No. of Seizures.	No. of Seizures.	No. of Seizures.	Domestic Manufactures.	TOTAL.
Agra	7	...	...	...	...	19	26	
Allygurh	17	...	24	...	...	2	43	
Boolundshahur	1	...	...	...	...	...	1	
Budhon	21	...	1	...	...	...	22	
Mymporia	34	...	...	...	...	19	53	
Farrucknab	40	...	11	1	...	17	69	
113 Cawnpore	18	...	...	...	...	1	19	
Fultchapore	10	1	6	...	...	2	19	
Allahabad	71	...	13	...	...	74	158	
Montporo	45	...	11	...	...	43	400	
Ghazepore	97	...	3	...	...	20	120	
Goruckpore	43	...	...	...	...	...	43	
											1,063
	Total	...		101	- 1	69	- 1	...	588		1,063

REVIEW OF THE ADMINISTRATION OF THE INTERNAL DEPARTMENT

Proportion of criminal prosecutions to captures.

Percentages on population, of persons prosecuted.

Captures, prosecutions and results, analyzed by circles.

21. Out of the 1,225 persons shown as captured in the preceding table, 648, or 52.89 per cent., were criminally prosecuted, the remainder escaping with, at worst, destruction of such salt as they had illicitly made. Our action in the Criminal Courts has therefore affected but the very low percentage of 0.0024 on the twenty-seven millions of population who live within the area over which the operations of our internal force extend. In other words we have prosecuted *one out of every 41,666* in the population, not, be it remembered, of the North-Western Provinces in their entirety, for there are districts which we leave to themselves, but of a certain area therein.

22. The subjoined table shows the number of persons captured in each Circle; how these were dealt with; and the final issue of our prosecutions in Court.

OF THE INLAND CUSTOMS, N. W. P. SECTION, FOR 1869-70.

YEAR.	Total number of persons captured by the Department.	RELEASED BY DEPARTMENT:				Pending investigation of the Department.	Sent for trial.	Acquitted.	Convicted.	Pending when report was submitted.	Percentage of convictions on number of persons sent for trial, declining time whose cases were still pending.						
		For making less than one year.		On proof of ignorance or inadvertence.													
		Indian persons, pregnant women or minors.	For want of proof.	On proof of ignorance or inadvertence.	For want of proof.												
1869-70.																	
Agra	54	2	...	...	7	...	45	12	33	...	73.33				
Allygurh	81	6	...	5	35	...	35	8	27	...	77.11						
Boolundshuhur	1	...	...	...	1	...	...	...	...	...	...
Budaon	29	4	...	6	0	1	9	...	6	3	100.00						
Mynpoorie	60	7	...	...	11	...	42	3	39	...	82.85				
Furruckabad	102	19	2	...	5	...	70	5	71	...	83.42						
Cawnpore	21	6	1	...	2	...	12	...	12	...	100.00						
Futtehpore	23	11	1	...	3	...	8	3	5	...	62.50						
Allahabad	180	31	...	...	6	...	143	24	94	25	79.66				
Jounpore	490	243	29	...	18	...	202	11	181	10	81.27						
Ghazeepore	130	56	...	...	16	8	60	1	42	17	87.67				
Goruckpore	44	26	...	...	2	...	16	5	8	3	61.33				
TOTAL	1,225	416	20	11	115	9	649	72	518	53	67.79						
1868-69.																	
Agra	45	8	1	...	7	...	20	13	16	...	65.17						
Allygurh	71	4	1	...	24	...	42	15	27	...	64.29						
Boolondshuhur	1	...	...	...	...	...	1	...	1	...	100.00	
Budaon	23	2	...	...	2	...	19	12	7	...	36.91				
Mynpoorie	96	8	...	...	15	...	73	20	53	...	72.00				
Furruckabad	62	14	...	...	7	...	41	7	34	...	82.02				
Cawnpore	168	11	...	1	66	...	110	31	76	...	69.00						
Futtehpore	5	1	...	...	...	...	4	2	2	...	50.00		
Allahabad	235	29	...	...	12	...	191	42	152	...	79.33				
Jounpore	493	187	6	...	57	...	218	46	107	...	81.03						
Ghazeepore	136	36	...	...	15	...	85	18	67	...	76.82				
Goruckpore	21	11	...	...	1	...	9	1	8	...	88.89				
TOTAL	1,376	311	8	1	206	...	850	210	610	...	75.29						
1867-68.																	
Agra	26	...	...	...	...	...	26	16	10	...	38.46	
Allygurh	105	...	...	1	36	...	68	27	41	...	60.20				
Boolundshuhur	13	...	...	...	8	...	5	1	4	...	50.00			
Budaon	20	...	...	1	4	...	15	5	10	...	66.67				
Mynpoorie	233	...	...	...	20	...	213	93	120	...	56.31			
Furruckabad	50	2	...	...	6	...	42	5	37	...	88.00				
Cawnpore	275	13	...	...	52	...	210	101	103	...	51.97				
Futtehpore	23	...	...	2	7	...	14	3	11	...	78.57				
Allahabad	190	17	...	1	32	...	131	19	112	...	53.49						
Jounpore	471	43	...	...	63	...	363	111	252	...	67.42				
Ghazeepore	130	21	...	...	9	...	97	23	73	...	74.22				
Goruckpore	25	...	...	...	2	...	23	1	22	...	88.00			
TOTAL	1,531	99	...	4	211	...	1,207	497	503	...	65.24						

Proportion of convictions to prosecutions.

Increase as compared with 1868-69.

Shows that cases are more carefully prepared.

Causes of releases in Court.

23. There are always a few cases, the result of which is unknown when this Report has to be written; and in the present instance the number 58 is considerable. Taking, however, ascertained results, the percentage of successful prosecutions is respectable, amounting to 87.79 per cent. We may reasonably look to see this increase when the whole year's work can be collated; and already the results, as they stand, are better by 12.50 per cent. than those of 1868-69, while they leave those of 1867-68 behind by no less than 21.51 per cent. The improvement is evidence of increasing care on the part of our Heads of Circles in scrutinizing cases before committing such for trial. In one Circle with twelve committals the maximum of cent. per cent. has been attained, in four others the highly respectable percentages, 92.55, 93.42, 91.27, and 97.67 are recorded, while the worst result of the year, 61.53, is still by 21.69 per cent. in advance of the least satisfactory return of 1868-69.

24. The following table shows the causes assigned during the year for dismissals of cases by the District Courts by which these were tried:—

NAME OF DISTRICT.	CAUSES OF DISMISSALS.							NUMBER
	Want of proof.	Insanity of the accused.	Non-complaint.	Insufficient evidence.	Dismissed on technicalities.	Non-attendance of the accused.	Other causes.	
Agra	8	...	...	...	...	...	...	5
Muttra	4	...	...	...	...	...	...	4
Allyghur	1	...	...	...	...	...	...	1
Etah	7	...	...	...	...	...	...	7
Etawah	2	...	...	...	...	...	...	3
Farrukhabad	5	...	...	...	...	...	...	5
Futtahpore	3	...	...	...	...	...	...	3
Allahabad	19	...	...	2	...	2	...	23
Mirzapore	1	...	...	...	...	...	...	1
Jounpore	8	...	1	...	...	1	...	10
Benares	1	...	...	...	...	...	...	1
Azimgurh	1	...	...	...	...	...	...	1
Goruckpore	...	...	3	...	...	1	...	4
Bustee	1	...	...	...	...	...	...	1
TOTAL	61	...	4	2	...	5	72	

It will be remarked that out of 72 dismissals, 61 are for want of proof. It is perhaps not too much to say that, were the decisions susceptible of appeal to higher tribunals, it is probable that in a large proportion a different view would be taken.

25. In the next table, the various punishments undergone by persons criminally convicted are detailed.

Details of punishments awarded by Courts.

OF THE INLAND CUSTOMS, N. W. P. SECTION, FOR 1869-70.

Proportion of persons who paid fines.
Incidence of fines.
Number who underwent imprisonment.

Ancient reproach against the department,

palpably refuted.

26. Out of the 518 persons whose cases are therein analysed, 322, or 62.16 per cent., preferring payment of a fine to loss of liberty, have to escape imprisonment, paid sums averaging Rs. 10-2-5 each. The remaining 196 went to jail.

27. In presence of such statistics as these, it is no longer possible for the long-cherished grievance against this Department, *viz.*, that its penalties ground down the very poorest of the population, to be advanced with any remnant of respect for consistency. Every one who knows anything of the condition of the really *poor*, knows that they never possess such sums as, with the majority of our departmental criminals, count for so little as to be relinquished in preference to enduring imprisonment, which (another fact worthy of notice) carries with it enjoyment of such provision, in food and clothing, as the really indigent never by any chance obtain for themselves. Another reason, not unworthy of remembrance, when considering facts like these, why a man of the classes with whom we deal must in reality be fairly well-to-do before he will pay down money to keep out of jail, is that his imprisonment implies but few of the evils elsewhere attendant upon incarceration. He loses no caste, is never, by any accident, put out of communion by his fellows, as would happen to him for offences against the unwritten laws of his tribe, none of his jail companions can after release make capital out of *him* (a common case in Europe) by threatening to publish the fact of his having been in jail; for most of those whose good-will is of value to him know it already, and think none the worse of him; nor is it a necessary consequence that, while he is in durance, his wife and children must starve. In fact, where one class, and the most troublesome, the makers of sulphate of soda, are concerned, the caste fellows of an imprisoned man will work his factory for his behoof. This is, in short, just one of those instances in which all English notions have to be put out of sight, before a just appreciation can be arrived at. If I have dwelt somewhat on the aspect of our cases, herein presented, it has been with recollection of the persistence with which accusations, such as above described, have, despite abundant refutation, been from time to time renewed. The features herein discussed are, be it remembered, *no accident of the year*, but common to a long series.

Overcrowding of jails,

no longer chargeable against us.

28. Another frequent reproach has been that we overcrowd jails; but if, as is not to be denied, we have, in the past, been open to such an allegation, we are now purging ourselves of it; for, in the present year, our recorded imprisonments average only six persons per jail for the thirty-one districts among which our force is divided; or, leaving averages, our largest imprisonment in any one Circle, has been of 61 persons, divided between two jails, those of Jumpror and Benares.

MISCELLANEOUS.

Condition of saltpetre trade, improved.

29. There has been sustained improvement in the saltpetre market. Prices have varied from Rs. 5-11-0 to Rs. 6-14-0 per maund, the lower rates, up to Rs. 6, prevailing only during about two and a half months at the beginning. The consequence may be seen in the following table. Exports from

OF THE INLAND CUSTOMS, N. W. P. SECTION, FOR 1869-70.

Calcutta during 1869-70 have exceeded those of 1868-69 by maunds 1,69,550.

MONTH.	1867-68.	1868-69.		1869-70.
		Maunds.	Maunds.	
April	67,703	65,062	63,880
May...	56,531	44,741	48,765
June	21,399	18,880	53,182
July	27,100	31,668	29,518
August	21,672	26,672	43,116
September	21,374	25,170	53,726
October	12,699	39,560	51,366
November	10,740	34,321	76,072
December	41,118	58,550	51,001
January	58,038	5,422	59,807
February	51,075	61,147	59,250
March	28,053	54,173	45,130
	TOTAL ...	4,18,402	4,65,566	6,35,116

30. The quantity of salt cleared from bond in saltpetre refineries during 1869-70 has been maunds 3,077-23-2 in excess of the out-turn of 1868-69. *Vide* subjoined table.

SALT CLEARED FROM BOND.
Increase.

YEAR.	Salt cleared in Refineries under Mooshriffs.	Duty thereon at Rs. 3 per maund.		Received under Contract.		Fractional Receipts.		TOTAL.	
		Mds.	S. C.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
1869-70	... ... 14,320 28 7	42,962	2 2	1,845	12 0	1 11	4	44,809	9 6
1868-69	... ... 11,243 5 5	33,729	6 5	1,104	1 9	1 8	3	31,835	0 5

31. Fourteen refineries have worked under contract against nine last year, and the amount realized is Rs. 1,845-12-0, or 67-21 per cent. in excess of last year's realizations. None but petty refineries, chiefly in the Ghazeeapore Circle, have worked under contract.

CONTRACTS UNDER SECTION VII OF ACT XXXI OF 1861.

32. Salt produced in saltpetre refineries has sold at much the same rates as last year, *viz.*, at from Rs. 3-4-0 to Rs. 4-8-0 per maund.

ATE OF SALT OF SALT-
PETRE
made in Refineries.

33. A certain stimulus, supposed by the Assistant Commissioner to be the result of the opening of the chord line on the East Indian Railway, has apparently been imparted to the trade in eastern salt, as far as Ghazeeapore.

EASTERN SALTS.

34. Otherwise, in connection with saline trades, there has been no such movement as needs separate notice, beyond what will be found in para. 14 of the present Report.

SALINE TRADES.
T. 11. 1. 1869.

ESTABLISHMENT.
Casualties.

Their improved aspect.

35. Casualties among the Establishment, as exhibited in the subjoined table, assume a favorable aspect as compared with those of 1868-69. The death-rate is nominal; the percentage of dismissals (making every allowance for an improved mode of classification, whereby dismissals for misconduct, pure, are separated from simple lapses from absence, showing but 5.76 per cent.), has distinctly improved.

	NUMBER OF EACH RANK AND GRADE.							Percentage of Total of each kind of casualty on Total Establishment.
	Sub-Deputy Inspectors.	Volunteers.	Moharrirs.	Kotepahls.	Jemadar.	Peons.	Orderlies.	
Total Sanction	32	24	135	49	63	653	48	1006
During the year died ... ...	...	...	...	...	...	1	...	1 0.00
Dismissed for misconduct	1	1	8	3	6	39	..	58 5.76
Failed to rejoin ... ...	...	...	...	-	...	13	...	13 1.29
Removed as unfit for Service ...	...	...	1	1	...	1	...	3 0.29
Resigned	1	4	...	...	1	23	...	29 2.83
TOTAL CASUALTIES ...	2	5	9	4	7	77	...	101 10.33
Percentage of Casualties on whole Force ... ...	...	...	...	...	...	...	...	10.33

Causes of dismissals in force.
Decrease of heinous offences.

36. Causes which have led to dismissals are shown in the next table. The most heinous of the classified offences, collusion, and falsification of records, form but 8.62 per cent. of the whole, against 15.51 of the more heinous types in 1868-69. No case of reception of bribes has been established against any of the force throughout the year.

CAUSES OF DISMISSALS IN FORCE.	Sub-Deputy Inspector.	Moharrir.	Moharrir.	Kotepahls.	Jemadar.	Lance Jemadar and Peons.	Orderlies.	Total.
Collusion	1	...	...	...	...	1
Falsifying records and false reports ...	1	1	...	...	1	1	...	4
Reception of bribes
Unauthorized absence	2	...	1	13	...	16
Disobedience and disrespect to Officers	1	1	2	6	...	10
False returns of residence	1	...	1
Asking gratuities
Illegal seizures	1	1	...	2
Allowing escape of prisoners	1	...	1
Miscellaneous	4	2	1	16	...	23
GRAND TOTAL ...	1	1	8	3	6	39	...	53

37. Two Departmental servants, Mooshiriffs (Excise Agents), have been punished during the year by Criminal Courts. The first case was connected with the duty of the man implicated being a charge of collusion, on which, after being sentenced to six months' imprisonment, he was released on appeal to Sessions Court. The second was one of theft from another of the force, entailing three months' imprisonment. Departmental dismissal followed in both instances. Offences against the public there have been none.

Punishment, by Criminal Courts, of members of the Force.

Absence of offences against the public.

38. Sixteen officers have, from first to last, done duty during the year as Deputy Inspectors, although no more than twelve have been employed at any one time. Between them, these officers have traversed 21,874 miles, or an average of 1,322 each. This is slightly below the figure of last year,* but weather was often greatly against active movement, what with the frightful intensity of heat in May and June, and the unusually heavy rains of the later months of 1869. On the other hand, the visits to factories of kinds have increased from 8,073 to 13,316, testifying to a general activity of the most useful kind. It is, moreover, to be borne in mind that these gentlemen do much work not susceptible of measurement by the mile.

OFFICERS.

Work done.

39. Subordinate Reports require no reproduction, for the reason advanced last year, *viz.*, that all details of the work have, as matter of discussion, been long ago exhausted.

Subordinate Reports contain nothing to reproduce.

40. Re-arrangements, discussed in paragraph 72 of the Report for 1868-69, aiming at bringing the makers of sulphate of soda in Cawnpore and Futtchpore under better supervision, have not yet had a sufficiently prolonged trial. The most natural result of concentrating force in a given area, in view to suppression of one particular illegality, is that, by reason of the feeling of hopelessness of escape which such a demonstration is qualified to engender among the people concerned, the illegality itself will decline, and consequent penal action diminish. This latter feature (lessening of penal action) is already largely apparent, for in the area concerned, but 44 persons have been captured, in 1869-70, against 193 in 1868-69. *Prima facie*, then, this is just what might have been expected to follow. Cause and effect seem fairly in evidence; but what forbids our taking so consoling a conviction for granted, is the existence of a most disquieting rumour, communicated by the Assistant Commissioner of Customs in Oudh,† to the effect that certain of these sulphate of soda works have been sending large quantities of salt disguised with a little kharee (sulphate of soda) into Oudh. The matter is at present under special inquiry, one of our very best officers, possessing considerable Police experience, having been sent to the most specially indicated locality. Should Mr. Hay's information prove well founded (and we know this much that pseudo-sulphate of soda, containing such enormous percentages of edible salt as entitle the substance to be called by the latter name only, have been found circulating in Oudh), we shall simply suppress the works, and place it beyond the power of their owners to outwit us in future. Mr. Hay has been directed to co-operate, by placing owners or hawkers of this impure salt under as much pressure as will induce them to declare whence they derive their supplies.

Re-casting of two circles not sufficiently tested.

Rumour connected with the tract in question.

Mr. Hay's information.

* 1,551 Miles.

† Vide also para. 14

NOTICE OF OFFICERS.

41. The officers who have in all ways done best during the year under review, combining activity in the field with such careful preparation of cases as has produced large percentages of convictions, are Messrs. Durant, Hardingham (who has rendered also good service in connection with the experimental salt works in Jounpore), Ashton (C. P.) and Howard. Mr. Browne has also done very well in active work. Mr. Adam, promoted to be Assistant Commissioner at Sambhur, although in charge of a Circle during a portion of the year, was mostly on special duty under the immediate orders of the Commissioner, with whom it will more appropriately rest to notice his work. Mr. Ray, Assistant Commissioner, what with Officiating as Collector of Customs at Agra during my own absence on leave, and with his selection for the special duty of setting afoot the new salt works in Jounpore, has also worked much under the eye of the Commissioner himself. But he has likewise done good service in supervision of work of Internal Circles, all of which, under the changes which recent enlargements have necessitated, are now, in the first instance, looked after by him.

CONCLUSION.

42. Compared with earlier attempts, the present Report looks scant and meagre: but this is the unavoidable result of having year after year to write of the same subjects, which, as time goes on, tend to contract, rather than to develop or expand; thus rendering it impossible to write at much length, except on condition of traversing and re-traversing, without apparent benefit, ground already thoroughly explored.

F. W. VERE,

Deputy Commissioner, Inland Customs.

Annexure A.

MONTHS.	COLLECTIONS FOR 1868-69.			Total 1868-69.			Total 1869-70.			COLLECTIONS FOR 1869-70.			Increase.	Decrease.	
	Fees.	Rs. A. P.	Fines on Factories and Sales.	Rs. A. P.	Rs. A. P.	Duty on Salt.	Rs. A. P.	Rs. A. P.	Fines on Factories and Sales.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
April	10,004	12 0	216 0 2	2,203	11 7	12,423	7 9	12,408	1 0	9,245	0 0	50 0 2	3,113 0 10	16 6 9	
May	...	...	331 8 0	20 12 3	2,662 2 0	3,014 7 0	6,404	1 11	378 0 0	33 4 0	5,922	13 11	3,389 10 11	...	...
June	...	...	18 0 0	26 13 4	4,032 6 2	4,077 3 6	5,228	11 1	245 8 0	16 0 6	4,967	2 7	1,151 7 7	...	...
July	...	...	1,823 0 0	61 4 0	2,703 5 6	4,587 9 6	8,373	5 0	3,438 0 0	39 4 6	5,395	0 6	4,285 11 6	...	...
August	...	...	1,031 0 0	12 10 3	1,577 4 0	2,623 14 3	3,553	14 7	1,024 0 0	9 6 0	2,550	8 7	930 0 4	...	...
September	...	...	493 0 0	7 7 0	1,987 14 6	2,488 5 6	3,275	14 3	214 0 0	5 6 3	3,056	8 0	787 8 9	...	...
October	...	...	2,028 8 0	7 5 2	2,426 8 0	5,062 5 2	3,218 0 2	1,170 0 0	0 4 0	2,057	12 2	...	1,824 5 0	...	
November	...	...	1,025 8 0	211 6 11	2,453 12 4	6,590 11 3	6,912 8 9	4,439 0 0	3 8 0	2,470	0 0	321 13 6	...	...
December	...	...	3,016 8 0	0 8 0	2,486 11 5	5,502 11 5	6,457 6 6	4,807 0 0	0 12 0	1,610	10 6	954 11 1	...	...
January	...	...	4,917 0 0	2 0 0	2,765 4 6	7,714 4 6	5,839 14 8	3,012 8 0	2 1 8	2,885	5 0	...	1,814 5 10	...	
February	...	...	3,852 0 0	1 6 0	2,685 10 4	6,539 0 4	7,275 8 11	4,067 8 0	1 9 0	3,206	7 11	736 8 7	...	...
March	...	...	13,314 4 0	1 7 0	6,850 5 4	20,166 0 4	14,860 8 9	7,135 0 0	1 6 0	7,151 2 0	...	...	5,275 7 7	...	...
	Total	...	45,387 0 0	563 0 1	34,835 0 5	80,790 0 6	84,417 15 7	39,475 8 0	...	162 14 1	44,800 0 6	12,687 8 3	8,920 9 2	...	...
	Deduct Decrease	...	...	...	...	...	...	...	...	...	...	8,020 0 2	...	...	...
	Net Increase	...	...	...	...	...	...	...	...	...	...	3,657 15 1	...	...	...

F. W. VERK,
Deputy Commissioner, Inland Customs.

Annexure B.

Annual Comparative Statement of Departmental Collections for 1869-70.

Name of Customs Circles.	Amount of Collections in 1868-69.		Amount of Collections in 1869-70.		Increase.	Decrease.
	Rs.	A. P.	Rs.	A. P.		
Agra	..	1,691 16 7	1,989 16 0	297 15 5	..	..
Allygorh	..	19,254 12 5	13,554 4 1	.....	5,700 8 4	..
Bulandshahur...	..	1,972 3 7	2,211 7 9	239 4 2	..	..
Budnaon	..	2,875 1 0	2,743 0 3	.....	132 0 0	..
Mynpoorie	..	4,652 8 4	3,504 13 0	.....	777 11 4	..
Farrukhabad....	..	17,638 2 7	23,173 11 4	6,135 8 9	..	..
Cawnpore	..	15,465 11 5	11,146 12 0	.....	4,318 15 5	..
Futtehpore	..	1,450 10 6	8,961 12 6	6,611 2 0	..	..
Allahabad	..	5,435 13 5	6,046 3 10	550 6 5	..	..
Jounpore	..	3,204 5 7	1,699 11 8	.....	1,594 6 11	..
Ghazepore	..	5,919 14 11	7,339 3 3	1,419 4 4	..	..
Gorakhpore	..	1,739 2 2	2,676 2 11	937 0 9	..	..
TOTAL		80,790 0 6	83,147 15 7	16,181 9 10	12,523 10 9	
Deduct Decrease	12,523 10 9	..
Net Increase	3,657 15 1	.....	..

F. W. VERE,
Deputy Commissioner, Inland Customs.

Annexure C.

LICENSSES ISSUED IN 1890-70.

* These figures differ by Rs. 100 from those given in the Table to para. 3. Refer footnote in Annexure D for the last year. Annual Return

H. W. VERRILL

Deputy Commissioner, Inland Customs.

No. and description of works in 1869-70.	Fees.	Duplicate Licenses.	Fees.	Total.		No. of Licenses.	Fees.	Increase.		No. of Licenses.	Fees.	Decrease.	
				% of Licenced.	Fees.			% of Licences.	Fees.				
5,706	11,592	0	30	15	0	5,826	11,007	0	1,052	2,113	0	431	
501	1,008	0	0	...	...	504	1,008	0	...	...	...	121
205	410	0	1	0	8	0	206	410	8	...	...	299
743	18,675	0	2	12	8	0	745	18,587	8	...	...	7,437
7,248	31,595	0	33	28	0	7,281	31,613	0	1,052	2,113	0	851	
...	....	...	...	....	...	...	....	...	...	...	...	2,113
...	....	...	...	....	...	...	....	...	...	...	...	0
157	7,830	0	1	12	8	0	158	7,832	8	0	13	612	8
...	612	8
												5,811	8
												Net Decrease	...

REVIEW OF THE ADMINISTRATION OF THE INTERNAL DEPARTMENT

Annexeure D.

OF THE INLAND CUSTOMS, N. W. P. SECTION, FOR 1960-70.

Annexure E.

Licence of both letters required.

Annexure F.

Notes for working without Internet.

		Ours				Mys				Angulapura and Belgaum			
		Bengal		Bengal		Bengal		Bengal		Bengal		Bengal	
		Excise	Customs	Excise	Customs	Excise	Customs	Excise	Customs	Excise	Customs	Excise	Customs
Agra	...	...	...	3	3	7	10	4	5	3	5	2	2
Allygurh	...	...	...	3	4	7	11	...	2	2	...	...	2
Bholundshahur	...	...	...	...	...	11	...	...	...	...	...	...	...
Budaon	...	...	...	12	6	8	9	2	2	1	4	1	1
Mynpoorie	...	...	...	27	7	37	2	16	2	2	33	3	3
Farrukhabad	...	...	...	2	4	11	6	5	4	5	8	8	8
Cawnpore	...	...	...	4	...	8	...	3	3	1	1	1	1
Futtehpore	...	...	...	1	1	3	1	1	1	1	3	3	1
Allahabad	...	...	...	14	26	42	36	14	23	42	33	...	...
Jouapore	...	...	...	6	21	12	21	3	11	5	5	11	11
Glazeeapore	...	...	...	16	10	45	24	8	14	22	22	17	17
Goruckpore	...	...	...	...	2	...	3	...	1	...	...	1	1
TOTAL	...	77	93	177	123	51	62	129	82				

F. W. VERE.

Deputy Commissioner, Inland Customs.

Appendix F.

Review of the administration of the Oudh Section of the Internal Branch of the Department of Inland Customs for the official year 1869-70.

1. Considerable changes have been effected in the internal economy of the section. Five circles have been condensed into four, composed as follows, *viz.* :—

GONDAH CIRCLE, comprising the districts of Gondah, Baraiteh, Fyzabad and Barabunkee. Internal economy.

PERTABGURH CIRCLE, comprising the districts of Pertabgurh Changes, and Sooltanpoor.

OONAO CIRCLE, comprising the districts of Oonao and Roy Bareilly.

LUCKNOW CIRCLE, comprising the districts of Lucknow, Hurdui, Seetapoor and Kheree.

2. This has made it possible to dispense with one Deputy Inspector and with his office staff, thereby reducing the executive* from 296 to 290 officers and men.

3. Receipts of 1869-70 amount, from all sources, to Rs. 12,062-8-1 against Rs. 11,231-9-10 in 1868-69, giving, in favor of the year under review, an increase of Rs 830-14-3, or 7-39 per cent., details being appended in the following table, comparing receipts of 1869-70 with those of three preceding years :—

INTERNAL
DEPARTMENT,
OUDH.

Reduction thence resulting.

FINANCIAL
RESULTS.

GROSS REALIZATIONS.

*Increases as compared with
1868-69.*

YEAR.	Fees on Licenses.		Fines and confiscations.		Duty on Salt.		TOTAL.			
	Rs.	A.	Rs.	A.	Rs.	A.	Rs.	A.		
1869-70	3,171	8	0		45	8	0	12,062	8	1
1868-69	2,140	0	0		15	0	0	8,776	9	10
1867-68	3,821	8	0		67	14	11	8,092	14	2
Corresponding 12 months of 1866-67	3,939	0	0		6	0	0	10,708	5	10
								14,653	5	10

4. Annexure A gives the collections for each month of 1869-70 in comparison with 1868-69. Five months exhibit decreases which are palpable fluctuations; those in August, September and October hinging on variations of season, which in different years admit of more or less movement of our officers, and encourage or repress, as the case may be, applications for licenses. Annexure B shows how the income was distributed among the circles which make up the departmental jurisdiction; *a propos* of which, it may be stated that the re-constructions alluded to in the opening para. of this Report, will, until that for the now current year comes to be written, render the increase and decrease entries, in the annexure in question, a mere matter of form. In the next Report they will regain their departmental value.

month by month.

as to the circles.

* Exclusive of Excise Agents (Moohsif).

Salt destroyed.

5. No salt, produced under Act XXXI of 1861, has been destroyed, as too impure for sale, during 1869-70.

Causes of increase in realizations,

the principal of which has been relaxation of a departmental rule

followed, apparently, by no ill effect.

6. Such increase as there has been in the income of 1869-70 has been mainly in the item of fees for licenses; for while the increase in duty on salt is but 0.77 per cent., that on fees* is 29.95 per cent. Fines and confiscations, a heading subject to uncontrollable fluctuations, need not be discussed. A relaxation of our first stringency in enforcing that provision of Notification 152A of 9th October 1867, which arms the Department with power to refuse licenses where seizures have been effected, has been the principal cause of the enlarged issue of licenses, of which even more might have been taken but for the diversion of labor towards the legalized salt factories, and to Railway and other Public Works. The relaxation above alluded to was, as indicated in para. 9 of last year's Report, the result of a suspicion that we had perhaps been more severe than was actually necessary, in our first application of the new rules. No harm, so far as we can yet see, has resulted: for although there has been an increase in one kind of illicit manufacture of salt, it has mostly been in a way disconnected with licensed works and has occurred principally in a circle (Pertabgurh) where these latter are comparatively few in number.

CHARGES

compared with those of 1868-69.

Increase.

7. The charges of the year, details of which, together with comparative items for three preceding years, are given in the subjoined table, amount to Rs. 66,288-15-5, being Rs. 9,893-1-4, or 17.54 per cent. in advance of those of 1868-69; fixed charges being in excess by Rs. 5,869-13-7, or 11.35 per cent., and contingencies by Rs. 4,023-3-9, or 85.48 per cent.

* Vide also para. 12, under issue of licenses.

YEAR.	FIXED		CONTINGENCIES.																										
	Supervision.	Prevention.	Total Fixed.			Convoyageance of weight- ing teams.			Pay of Pounds stuck in Hospital.			Postage Labels.			Duties of Prisoners.			Half Rates as per- son.			Miscellaneous.			Total of Contingencies.			Grand Total of charges.		
Assistant Commissioner and Office.	Officers, Deputy Inspectors and Sub-Deputy Inspectors.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.			
1860-70	...	10,768 0 6	23,160 5 10	57,559 0 0	2,197 10 4	600 15 3	11 5 7	684 8 0	21 10 0	952 6 3	4,352 0 0	6,720 15 6	68,258 15 6																
1869-70	...	9,371 0 0	22,639 1 7	10,480 0 10	51,039 2 5	2,218 4 0	477 11 0	.....	698 4 0	8 5 0	310 1 11	953 0 0	4,500 11 8	60,386 14 1															
1867-70	...	9,403 7 10	21,805 13 3	19,703 6 8	51,001 11 0	1,032 3 4	215 0 0	.....	811 0 0	3 3 0	362 1 2	650 7 7	3,105 15 1	54,170 10 10															
Corresponding 12 months of 1860-67																													
...	9,349 3 5	20,731 11 3	10,729 13 0	60,111 11 8	1,143 2 4	300 6 11	.....	433 8 0	0 0 1	227 0 0	667 12 0	2,778 16 4	63,220 11 0																

Fixed charges.

compared with 1868-69.

Causes of increase.

Contingencies, compared with 1868-69,

increases explained.

Absence of comparison of charges with years prior to 1868-69,

explained.

8. The increase under fixed charges is to be accounted for by remembering that the higher scale of salaries, sanctioned by the Government of India in 1868, came into effect only in the latter half of that year, whereas the entire year has, in the present instance, felt the reaction.

9. Under contingencies, it will suffice to explain increases, which occur under, "Conveyance of Weighing Apparatus and Tents," to an amount of Rs. 129-3-9 caused by increases of movement among Deputy Inspectors; and under "Pay of Peons sick in Hospital," to Rs. 14-5-7 the item being, in 1868-69, nil; and under "Dieting of Prisoners," an item naturally subject to fluctuations, to a sum of Rs. 13-4-6; and under "Half Fines," which represent the perquisites of captors of persons convicted in Court, to a figure of Rs. 606-3-4 caused by our now drawing, in our own contingent bills, sums which formerly we received from the Court which imposed the fine; also under "Miscellaneous," to an amount of Rs. 3,394-9-0, ascribable to an outlay of Rs. 3,550 for purchase of tents, of which it may be remarked that it would be but fair to attribute but one-fourth to the presently discussed year, inasmuch as the tents will last, at the very least, for four years, and probably much longer.

10. There is manifestly no purpose to be gained by prolonging the comparison of charges, by comparing those of 1869-70 with those of years when, as regards fixed charges, a lower scale of salaries prevailed, but it being necessary to ascertain the proportion which income and outlay bear to each other, the following table, embodying details for four years, has been prepared:—

Year.	Gross expen- ditu.		Realizations.	Net expendi- ture.	Net expendi- ture per mensem.	Percentage of gross expen- ditu. on income.
	Rs. A. P.	Rs. A. P.				
Incidence of charges on 1869-70 income.	... ... ...	66,258 15 5	12,062 8 1	54,226 7 4	4,518 3 11	519-56
1868-69	... ... ...	56,395 14 1	11,231 9 10	45,164 4 3	3,763 11 3	502-13
1867-68	... ... ...	64,170 10 10	11,091 5 1	42,188 5 0	3,513 11 1	452-09
Corresponding 12 months of 1866-67	... 58,220 11 0	11,633 5 10	38,567 6 2	3,213 15 1		363-20

11. In this, the figures show that the incidence of charges has progressively increased. The reasons are precisely the same for Oudh and for the North-Western Provinces, *viz.*, that, in the three earlier years of the series, there was a progressive decline of income, from causes which the Department possessed no power to control, while, under pressure of the obligation to maintain preventive efficiency unimpaired, charges not only

remained much as they were, but were subject to increase as officers employed on the branch, earned promotion by length of service. In 1868-69 a still sinking income came in juxtaposition with a general increase to salaries, causing, naturally, a considerable increase in the incidence of the latter; while in 1869-70, the development of this increase is slightly tempered by an addition to income. The increase in incidence in 1869-70 is 47·43 per cent., but in 1868-69 it was 50·04, and in 1867-68 was 88·89 per cent. As the trade in saltpetre has to a considerable extent revived, it would be reasonable to look forward to such an increase of income from duty on salt produced in refineries, as would bring about a reaction, and lower the incidence of cost of our preventive arrangements; but against this probability has to be placed the effect, upon the salt market, of the local works, and of the extension of Railways, both tending to lower the price of salt, and with it, the profits to be derived by refiners of saltpetre from sale of their residuary produce. Already small refiners (and in Oudh *all* refineries, since the collapse of Sah Muklun Lal, are small) are known to lean towards quantity rather than quality; and the lower their profits on salt, the more this tendency is likely to grow upon them. In connection with this, it will be unnecessary to do more than briefly indicate the dependence of the local salt works on the preventive establishment, without which it is quite certain that the produce of the former, weighted with its three rupees two annas per maund, would, for consumption of the less wealthy classes, have but slight chance against salt as good, turned out as far as its makers were in question for next to nothing.

Prospect of reduction of cost.

Causes which may prevent this.

Utility of departmental force,

in connection with new salt works.

12. Annexure C shows the issue of licenses of every kind and the fees thence realized, with details of increase or decrease for every Customs Circle. During the year, the province through, works for preparation of crude saltpetre have increased by 222, and refineries by eight, which I regard as the simple consequence of the undeniable improvement in the Calcutta market, evidence of which will be found farther on. Works for subject (a rough carbonate of soda) have fallen off by 46, probably* from the same cause (lessening of demand) as in the North-Western Provinces, and those for sulphate of soda (Kharee) are fewer by eight, a matter for no regret, when their highly dangerous nature is borne in mind.

ISSUE OF LICENCES

For saltpetre works, increase.

Circles.

Other works, decrease.

13. Annexure D shows the number of licenses refused during the year; the figures reproducing very nearly those of 1868-69 when 200 crude and one refining licenses were refused. In the year under review, we have 192 of the former and one of the latter.

14. Annexure E shows the numbers of persons seized for working saline factories without license and its figures show that this species of illegality is distinctly wearing out.

15. At the first glance, the statistics of the year would seem to point to an alarming increase of illicit manufacture, but a closer examination is more reassuring. Cases have increased; but this is mainly because we have adopted a more accurate

ILLICIT

MANUFACTURE

OF SALT.

* The Assistant Commissioner is silent on the subject.

REVIEW OF THE ADMINISTRATION OF THE OUDH SECTION OF THE

Real condition.

Persons captured.

Proofs of decrease in illicit production.

method of account; and if a larger number of persons have brought themselves under interference in 1869-70 than in 1868-69, *viz.*, 2,089 against 1,270, the cause has been discovery of rather extensive, even if petty, illicit manufacture in the highly saliferous tracts of Pertabgurh; but, on the other hand, despite the increase in persons captured, the quantity of salt seized has fallen, from maunds 168-28-1 in 1868-69 to maunds 83-24-15 in 1869-70; and, most re-assuring feature of all, we have it on Mr. Hay's authority that, during no corresponding period has there been less general scraping up of saliferous soil. On the whole then, there is ground for believing that taking the province as a whole, there has, during 1869-70, been less illicit manufacture than usual. Migration of hereditary salt makers, their partial attraction to legalized works, and the vigorous support of judicial authorities, are the reasons assigned by the Assistant Commissioner for this favorable condition of things.

**PENAL ACTION
OF THE DEPART-
MENT.**

16. The penal action of the Department is exhibited in the following Tables, the first of which has already virtually received notice in the preceding paragraph:—

NAME OF CIRCULAR	CASH OF KURUKH.	QUANTITY OF MAUND.	M.S. SEIZURE.								TOTAL	
			No.	No.	No.	No.	No.	No.	No.	No.		
Talchow	"	"	260	163	220	91	33-26-10	42-35-0	47-35-0	51-18-6	6-02-0	1,013
Qomra	"	"	216	68	113	161	32-21-0	3-8-12	14-33-1	6-02-0	41-31-12	845
Pertabgurh	"	"	218	197	313	1,791	30-20-5	22-5-13	61-2-1	2-35-15	6-32-14	71
Goudah	"	"	"	"	"	"	"	"	"	"	"	
			783	452	691	2,031	101-59-12	71-59-11	165-25-1	81-21-15	2,347	1,013
											2,613	

17. The next table showing what became of all those with whom the Department was compelled to interfere, possesses features of interest. Out of the total number 2,089, 1,696, or 81·18 per cent. were released by the Department after suffering no penalty, but the nominal one of destruction of works (usually consisting of a pot or two, and never by any chance of an expensive plant*) and of such salt as may have been made. Of these 1,696 persons 1,608 *had made salt*, but less than one *for pell-mell of production*; three were set at large as infirm, and only 85 or 5·01 per cent. of the whole number released for want of proof, or in other words, by reason of imperfect justification of our first *for want of proof* interference with them. These statistics show the working of the system introduced under Government Order 152 A of the 9th October 1867, under the earlier system, most, if not all of the 1,608 persons abovenamed as having made salt, would have been prosecuted, and as the history of our prosecutions proves, by far the larger portion would have been convicted and punished.

PERSONS.

Number captured.

Departmentally released.

18. Of the 393 persons whom we have prosecuted we know the fortune of all but 19, and it is highly satisfactory to find that of the cases decided when the year closed, no less than 91·17 per cent. were convicted. This percentage is more likely to increase than to decline when the accounts for the year are completed, and it is already more than six per cent. better than the entire result of 1868-69, when but 83·27 per cent. of our cases were successfully prosecuted. The improvement is much to the credit of our local officers as a body, and testifies to great care and judgment in their preparation of cases.

Number committed to Criminal Courts.

Percentage of convictions.

Improvement as compared with 1868-69.

YEAR.	Total number of persons captured by the Department.	RELEASED BY DEPARTMENT.				Sent for trial.	Acquitted.	Convicted.	Pending when report was submitted.	PERCENTAGE OF CONVICTIONS ON NUMBER OF PERSONS SENT FOR TRIAL DEDUCTING THOSE WHOSE CASES WERE STILL UNDECIDED
		For making less than one seer.	Infirm persons, pregnant women or minors.	On proof of ignorance or inadvertence.	For want of proof.					
1869-70	2,089	1,608	3	...	85	393	33	341	19	91·17
1868-69	1,270	457	7	...	191	615	102	503	54	83·27
1867-68	1,035	260	...	...	195	500	76	518	...	67·11
1866-67	2,387	...	9	...	333	2,040	392	1,641	71	69·71

* It is not amiss to be precise on these matters, for the phrase "destruction of works" might, with some persons, conjure up visions of woeful injury to valuable property and of *reinclusio* *lata*, disguised as a lenient procedure.

† Five men absconded.

‡ Seven men "

REVIEW OF THE ADMINISTRATION OF THE OUDH SECTION OF THE

Punishments awarded by Courts.

19. The following table shows the punishments awarded by Criminal Courts, the number of persons who underwent imprisonment, and of those who, rather than go to jail, paid fines:—

YEAR.	IMPRISONED IN DEPARTMENTAL PRISON, OR PAYMENT OF FINE.	PAID FINE.		NOT PAID FINE.		TOTAL WHO PAID FINE.		NOT PAID FINE.		TOTAL.	
		Rs. 10/- and below	Rs. 10/- and above	Rs. 10/- and below	Rs. 10/- and above	Rs. 10/- and below	Rs. 10/- and above	Rs. 10/- and below	Rs. 10/- and above	Rs. 10/- and below	Rs. 10/- and above
1866-70	No. imprisoned for 6 months. No. imprisoned for 3 months. No. imprisoned for 1 month. No. absolved 10 days. No. absolved 15 days. No. absolved 20 days. Total who underwent imprisonment.	7,38,30,31,27,1,5	2,50,0,0,7	3,60,0,0,10	2,35,0,0,37	1,12,0,0,10	1,12,0,0,10	61,11,2	1,224,10,5,104	131,3,0,61	211,7,7
1867-69	...	3,25,10,10,2,6,13	1,60,1	1,50,0,0,3	2,20,0,0,4	67,6,0,0,2	67,6,0,0,2	102	1,224,10,5,104	131,3,0,61	211,7,7
1866-67	...	12,12,4,10,10,6,12	0,22	7,1,00,0,0,20,1,10,0,0	10,65,0,0,10	65,0,0,10	65,0,0,10	111	1,227,4,0,250,3,5,221,1,33,10,4,722,11,0	131,3,0,61	211,7,7

Number who underwent imprisonment, and who paid fines.

Tendency to prefer imprisonment to fine,

increasing in Oudh.

20. Out of 341 persons, 210, or 61.59 per cent., underwent imprisonment, and the remaining 131, or 38.42 per cent., paid fines, of which the incidence, per head, was Rs. 10-7-1.

21. In one respect, this table exhibits a condition opposed to that prevalent in the North-Western Provinces, where, among departmental criminals, the tendency is to pay, rather than go to jail. Gradually, in Oudh, the proportion of those who accept imprisonment is increasing, and this inclination has been especi-

ally marked during 1869-70, as the following comparative figures will show:—

In 1869-70 the number of those who went to jail rather than pay fines was ...	...	...	...	61.55 per cent.
In 1868-69	...	...	...	31.88 "
In 1867-68	...	...	...	30.93 "
In 1866-67	...	...	...	20.10 "

From these data the Assistant Commissioner infers that the wealthier of the professed salt makers are abandoning illicit practices: indeed he goes so far as to say "have now altogether given up the practice." But it is scarcely safe to generalize as yet, for during the year now under consideration, a principal feature has been the number of cases of domestic manufacture discovered in the Pertabgurh Circle, which were certain to involve a considerable proportion of a poorer class of workers, and to add to the number of those who would be likely to prefer imprisonment (which carries with it provision, and that ample and excellent, of food) to payment of a considerable sum: while the fact that even now, more than a third of those convicted have preferred to escape imprisonment by paying sums, the average of which was considerably above the average incidence of the preceding four years, proves that we still have to deal with no inconsiderable proportion of a comparatively wealthy class. Ability to put down ten rupees in hard coin removes, in India, the man who displays it from the list of those who must be classed as indigent.

Inference that wealthier workers in saline substances are abandoning illicit practices

not yet safe to rely on.

A large percentage still prefers payment of sums, relatively large, to imprisonment.

22. No cases, sufficiently remarkable to merit notice here, have occurred during the year. Absence of important cases.

23. Such information as is possessed on the condition of the saltpetre trade will be found in para. 29 of the accompanying report on the North-Western Section of the Internal Branch. It may however here be noted that prices in Calcutta have risen from Rs. 5.11 to Rs. 6.14 per maund, and that exports in 1869-70 were maunds 6,35,116 against 4,65,566 in 1868-69.

MISCELLANEOUS.
Condition of saltpetre trade.

24. Increase in out-turn of salt from saltpetre refineries is but nominal, being maunds 2,948.17.2 in 1869-70 against maunds 2,925.19.5 in 1868-69. The increase in the number of refineries would warrant our expecting better results, and inquiries are in progress with intent to throw, if possible, some light on the cause of what is rather a disappointment. This may be found in the proclivity, alluded to in para. 11, to sell all produce of these small concerns, as saltpetre; but it is the duty of a preventive establishment to take little for granted, and we are accordingly looking into the matter. No compositions, under Section VII of the Act, have been permitted in Oudh.

Out-turn of salt from saltpetre refineries.

25. Saltpetre salt, *i. e.*, that which is made in refineries, sells at from Rs. 4.8 to Rs. 5 per maund.

26. A considerable decline in importations of taxed salt is apparent, and by the great inlet across the Cawnpore bridge, but maunds 4,97,393 have gone into Oudh against maunds 6,89,425 in 1868-69,* while imports *via* Shahjahanpore are vari-

IMP. STATION OF SALT.

* Since the above was written, a certain briskness has again become apparent by this inlet.

ously stated at from 1,25,000 to 1,50,742 maunds, showing, in either case, a distinct falling off, as compared with earlier years. Scarcity of carriage and unwillingness of capitalists to risk investments until something certain was known of the effect of the newly established local salt works, are the causes advanced to account for the change, in which there is nothing, after all, to cause much uneasiness. Opening of salt works in Oudh was sure to check importations, and the better such works succeed, the more marked will be their influence in this direction. Meanwhile, we shall derive our revenue from two sources in lieu of one, and if the local works fail, importations will be prompt to supply any void caused by an unanswered demand.

Apparent causes.

ESTABLISHMENT.
Casualties.

27. Casualties, among the preventive force, are shown in the following table:—

	NUMBER OF EACH RANK AND GRADE.							Total Sanctioned Retirement	Percentage of total of each kind of casualties on total establishment
	Sub-deputy Inspect- ors	Majors	Second Lieu- tens	Recepcys.	Jemahs.	Peons	Orderlies		
Total sanction	14	0	35	19	20	204	15	223	.....
During the year died	1	...	1	6.31
Dismissed for misconduct	...	1	2	4	2	17	...	26	5.65
Failed to rejoin...	...	1	...	...	...	9	1	11	5.42
Removed as unfit for ser- vice	1	2	...	51	...	51	16.45
Resigned	...	1	1	1	2	14	2	21	6.61
Total casualties	...	2	2	8	2	92	3	112	53.20
Percentage of casualties on whole Force	53.20

Health of Force.
Good.

28. The health of the men, all exposure notwithstanding, has been good; the death rate is nominal, for the one man, who died during the year, met his death by an accident, in nowise connected with his duties.

Dismissals.

their percentage.

Undesirable features.

29. Dismissals are, at first sight, much below those of 1868-69, when they amounted to 22.39 per cent. But in that year, we lumped all dismissals under one heading, whereas we now distinguish between dismissals for misconduct, failures to rejoin, and removals for unfitness; and the sum of these makes up 28.13 per cent., out of which 16.182 per cent. are for unfitness. This is far from satisfactory; we have made no general reduction, which would naturally be the signal for ridding ourselves of our less eligible hands; and officers could not have been as careful in selection as they are bound to be, for anything like this proportion of removals to be necessary. The attention of the Assistant Commissioner has been directed to the matter, in which he will doubtless effect amendment. The causes which led to dismissal, in cases classed as misconduct, are displayed in the following table. The more heinous offences, collusion, falsification of records and reception of bribes, have led, respectively, to 11.53 per cent., 30.76 per cent. and 11.53 per cent. of the whole dismissals. It will be observed that all misconduct was departmental. As against the public, the force has been void of all offence.

Causes of dismissals.

All misconduct depart-
mental.Absence of offence against
the public.

INTERNAL BRANCH OF THE DEPT. OF INLAND CUSTOMS, 1869-70.

CASES.	Sub-Deputy Inspectors.	Mohurris.	Moohribis.	Kolergulahs.	Jemadars.	Lance Jemadars and Penns.	Orderlies.	Total.
Collusion	1	...	...	2	...	3
Falsifying records and false reports	2	1	5	...	8
Reception of bribes	1	...	...	1	1	...	3
Disobedience and disrespect to officers.	1	...	...	...	1
False returns of residence	3	...	3
Asking gratuities
Illegal seizures
Allowing escape of prisoners	2	...	2
Miscellaneous	1	...	...	5	...	6
GRAND TOTAL	1	2	3	2	18	...	26

30. One public servant alone was committed for trial by a ^{Prosecutions of force before Criminal Courts.} Criminal Court. The offence was one against Postal Regulations, and the offender was convicted by the Court.

31. Four officers of the rank of Deputy Inspector have done duty in Oudh during the year, and have on the average traversed 1,470 miles. This is below the average of last year, but one of the number, Mr. Lyon, was long employed in assisting his superior, Mr. Hay, in preliminary operations at the local salt works, and the unusual severity of heat in the first months of the official year made something less than ordinary out-door activity, a matter of absolute necessity. In all other respects, and very notably in the important item of attention to details of cases ^{Generally satisfactory.} which were sent into Court, there is every reason to be content with the work of the year. Messrs. Dawes and Kenyon have ^{Notice of Officers.} done fairly well in out-door work, and Mr. Lyon, who is described as having been useful at the new works, has done a moderate amount of ordinary duty in addition.

32. The Assistant Commissioner, Mr. Hay, has had to devote so much of his time to the important and difficult task of organizing a local manufacture of salt, and has thus worked so much under the immediate orders of the Commissioner, that notice of his exertions will come much more appropriately from that gentleman than from me. I will simply bear witness that Mr. Hay has not meanwhile in any way seemed to neglect the more important of his routine and older duties.

WORK OF OFFICERS.

Work of Assistant Commissioner.

F. W. VERE,
Depy. Commr. of Inland Customs.

REVIEW OF THE ADMINISTRATION OF THE OUDH SECTION OF THE

ANNEXURE A.

ANNEXURE B.

Annual Comparative Statement of Departmental Collections for 1869-70.

Names of Circles.	Amount of Collections in 1868-69.	Amount of Collections in 1869-70.	Increase.			Decrease.		
			Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Lucknow	5,236 11 5	5,100 12 1	.....	135 15 4
Orissa	2,439 5 11	3,038 15 4	599 9 5	.....
¹⁴ Patalgagh	678 2 5	574 0 11	.....	104 1 6
Gondal	2,877 6 1	3,348 11 9	471 5 8	.....
Total	11,231 9 10	12,062 8 1	1,070 15 0	210 0 10
Direct Drawal	240 0 10	
Net Increase	830 14 3	

F. W. VIER,
Deputy Commr. of Inland Customs.

ANNEXURE C.

INTERNAL BRANCH OF THE DEPT. OF INLAND CUSTOMS, 1869-70.

Deputy Commr. of Inland Customs.

Appendix G.

Details connected with the Sooltanpoor Salt Works.

(*Extracts from a Report by Baboo Kalee Narain Roy, Patrol, Sooltanpoor.*)

43. I beg to notice the out-turn of the salt works attached to this beat. The products of the past year, 1869-70, amounted to maunds 6,23,309.33, being 12.44 per cent. below those of 1868-69.

YEAR.							Annual out-turn.
1869-70 ...	...	...	...	...	...	...	6,23,309.33
1868-69 ...	...	...	...	...	...	...	7,11,931.26
1867-68 ...	...	...	...	...	...	...	5,76,907.89
Corresponding 12 months of 1866-67			...	...	...	...	6,72,902.42

The season for the production of salt was very unfavorable during the past year, specially during the months of July, September, October, and even in December 1869, on account of heavy showers that fell at short intervals during the above months. While, during the preceding year, 1868-69, the weather being dry and favorable, salt was produced plentifully even in the rainy seasons; although, as will be seen in the annexed Statement, the salt works have progressed, the number of wells and pans having increased, still the season was so unfavorable as to have affected seriously the produce of salt.

Again, during the preceding year, 1868-69, owing to the drought, the bullocks being employed in the salt works suffered very little from starvation, as the manufacturers had a sufficient store of fodder, with which they managed to feed them till the end of the year, and the bullocks were kept in pretty good condition. But, in the beginning of the past year, when all stores were exhausted, and when fodder was almost unprocureable at any price, some of the bullocks died by starvation, and others were reduced to skin and bone. Therefore, the work of the salt works was somewhat neglected till the month of August 1869, when, again, the season being favorable, fodder became plentiful, and the bullocks began to recover strength. The death of many bullocks, and the enfeebled condition of the rest, contributed also to cause a decrease in the produce.

44. I proceed now to enter into further details. The subjoined Statement has accordingly been prepared to exhibit the

DETAILS CONNECTED WITH THE SOOTANPOOR SALT WORKS

annual out-turn and sales of each cluster of salt works separately with the selling price during the past year:—

Name of Salt Work.	Balance of stock not sold on the 1st April 1870.	Amount sent out of State for	Total.	Quantity sold during the year 1870-71.	Sales on the spot during the year 1870-71.	Selling price per maund for the year 1870-71.
Mubarikpoor	22,325.00	25,160.00	47,485.00	2,610.00	30,700.00	90.
Basseerpur	—	5,207.25	5,207.25	1,000.00	6,200.00	75.
Soltanpoor	—	6,607.50	6,607.50	6,607.50	6,607.50	75.
Saldpur	—	2,615.50	2,615.50	2,615.50	2,615.50	75.
Bulpoor	—	4,187.15	4,187.15	6,160.00	8,200.00	75.
Kallawas	—	3,000.00	6,724.75	3,324.75	4,000.00	75.
Nehmoodpur	—	2,521.25	6,600.00	9,121.25	9,121.25	75.
Zahedpoor	—	4,117.50	7,600.00	11,717.50	6,000.00	75.
Sylana	—	2,623.00	4,600.00	7,223.00	4,600.00	75.
Total	24,849.00	6,21,360.00	6,46,209.00	7,685.00	1,34,000.00	75.

Average selling price per maund for the year 1870-71.

Comparative Statement exhibiting increase or decrease in the annual out-turn of each salt work separately for the year 1869-70.

NAME OF SALT WORK.	1869-70.		1870-71.		Difference.	Difference.
	Quantity.	Quantity.	Quantity.	Quantity.		
Mubarikpoor	205,160.00	253,424.75	—	—	—	48,264.75
Basseerpur	—	50,160.00	1,79,074.75	—	—	128,904.75
Soltanpoor	—	61,012.50	63,350.00	—	—	2,337.50
Nehmoodpur	—	21,924.75	14,800.00	7,124.75	—	—
Saldpur	—	6,615.50	5,160.00	5,125.50	—	—
Sadrana	—	61,912.15	52,620.00	5,332.15	—	—
Bulpoor	—	44,815.37	28,771.25	10,043.12	—	—
Kallawas	—	6,724.75	4,013.50	1,711.25	—	—
Zahedpoor	—	72,400.00	76,361.00	—	—	4,961.00
Sylana	—	16,000.00	17,277.00	1,277.00	—	—
Total	6,23,360.00	7,11,904.75	27,685.00	1,16,312.50	Deduct Increase	27,685.00
Deduct Increase	—	—	—	—	Net Decrease	88,624.75

45. It will be seen in the above comparative statement of the annual produce of each salt work, that in all the large salt works, where the hakimee cess was taken at a high rate, there has been a decrease in produce; whereas, in the small salt works, where the cess was taken at a low rate, an increase has been exhibited. This evidently shows that the imposition of a heavy cess, and the oppressive manner of obtaining it by the contractors, have affected the prosperity of the works.

DETAILS CONNECTED WITH THE SOOLTANPOOR SALT WORKS.

The following comparative statement will show the number of wells and pans in each salt work separately attached to the Sooltanpoor salt works:—

NAME OF SALT WORK.	NUMBERS THAT WERE IN WORK AT THE END OF YEAR 1869-70.		NUMBERS THAT WERE IN WORK AT THE END OF YEAR 1868-69.		INCREASE.		DECREASE.	
	Wells.	Pans.	Wells.	Pans.	Wells.	Pans.	Wells.	Pans.
Mobarickpoor	78	1,108	69	1,067	9	41	...	...
Busseerpoor	37	585	39	557	...	28	2	...
Sooltanpoor.	40	457	37	443	3	14	...	...
Sadrana	25	319	22	315	3	4	...	...
Balpoor	15	236	15	245	...	...	...	9
Kalliuwas	3	45	3	45	...	...	...	...
Saidpoor	8	75	7	67	1	8	...	...
Mahmoodpoor	13	147	16	153	...	...	3	6
Zahedpoor	13	708	13	463	...	245	...	...
Sylana	8	170	8	104	...	66	...	...
TOTAL	210	3,850	229	3,459	16	406	5	15
Deduct Decrease	...	...	...	...	5	15	...	...
Net Increase	...	...	...	...	11	391	...	...

46. Prices in depôts, &c., both above and below line.

Here I have to notice, that the price of Sooltanpoor salt, both above and below line, varied notably during the past year; beginning from April 1869 at an average rate, below line 3·93 annas and above line ·52 annas per maund, it very slightly fell in May 1869 to 3·87 below, and ·48 annas above line; when from June it again steadily rose till January 1870 and reached 4·12 per maund below, and ·76 annas per maund above line, (that is, at the works) when it again declined in February 1870, until by the end of the year it reached 3·87 below and ·48 annas above line per maund.

47. The sub-noted table shows the variation in price, above line at the salt sources and at the leading mart below line, during each month of the past year with averages:—

Prices.

General fluctuations.

Details.

Salt.

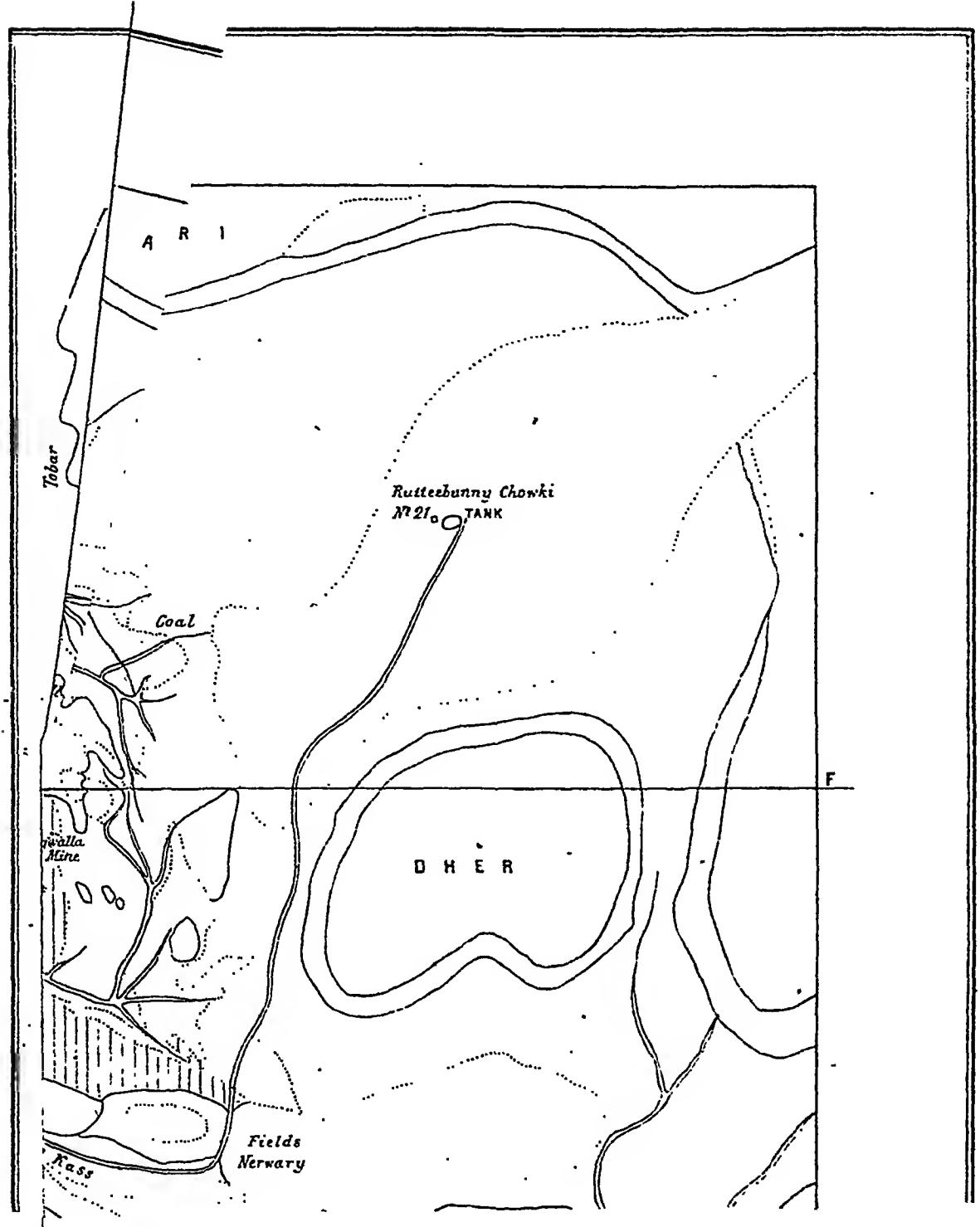
MONTH AND YEAR.	PRICES OF SOOLTANPOOR SALT AT THE LEADING MARTS, PER MAUND.			
	ABOVE LINE.		BELOW LINE.	
	Sooltanpoor Salt Source.	Average.	Delhi.	Average.
	Annas.	Annas.	Annas.	Annas.
April 1869	·49	·49	3·94	3·94
May	·45	·45	3·88	3·88
June	·48	·48	3·87	3·87
July	·45	·45	4·06	4·06
August	·49	·49	4·12	4·12
September	·52	·52	4·12	4·12
October	·61	·64	4·19	4·19
November	·65	·65	4·19	4·19
December	·72	·72	4·19	4·19
January 1870	·73	·73	4·12	4·12
February	·59	·59	4·	4·
March	·48	·48	3·88	3·88
Total	6·69	6·69	48·56	48·56
Average	·56	·56	4·05	4·05

DETAILS CONNECTED WITH THE SOOLTANPOOR SALT WORKS.

Statement showing the monthly selling price per marud of each salt work separately for the year 1869-70.

MONTH AND YEAR.	SELLING PRICE OF SOOLTANPOOR SALT PER MARUD AT PATTI COUPET.												STATUTORY TAX OF SALT WORKS PER MARUD PATTI TAX.	
	Mohamedpoor.	Sohilpoor.	Sulpoor.	Sultana.	Sulpoor.	Rupnagar.	Rupnagar.	Rallawala.	Mohamedpoor.	Zabedpoor.	Sohilpoor.	Total.	Average of all prices.	
April 1870	..	76	87	88	88	86	86	82	82	81	81	87	82	82
May	79	88	87	87	84	84	83	83	83	83	83	83	83
June	78	83	85	82	81	80	83	83	83	83	83	83	83
July	71	72	73	73	74	74	76	76	75	75	75	75	75
August	73	73	73	73	73	73	73	73	73	73	73	73	73
September	73	75	71	74	73	72	74	74	74	73	73	73	73
October	73	75	75	75	73	75	75	75	75	75	75	75	75
November	79	78	78	78	76	76	76	76	76	76	76	76	76
December	75	77	73	74	72	72	73	73	73	73	73	73	73
January 1870	..	74	79	73	77	71	72	73	73	73	73	73	73	73
February	72	73	72	73	73	73	73	73	73	73	73	73	73
March	75	73	72	73	73	73	73	73	73	73	73	73	73
Total	577	87	559	575	510	68	401	537	53	487	..	624	4750
Average	72	72	70	70	71	71	70	70	70	70	70	70	70

(Sd.) KALEE NARAIN ROY,
Patrol, Soltanpoor.



Appendix B.

Report on the Mayo Salt Mines, Khewrah Salt Range.

With three maps appended showing :—

No. I.—Geological Sketch Survey of the environs.

„ II.—Survey of the salt mines hill with contour lines.

„ III.—Survey of the Mayo Salt Mines with future working plan.

The Report is in five parts :—

1. Geological description of the environs.
2. Description of the hill in which the Mayo Salt Mines are situated.
3. Description of the salt mines and the present mode of working.
4. Description of the future working plan.
5. Chemical analysis of the salt.

1.—Geological description of the environs of the Mayo Salt Mines with Map No. I.

1. One conformable series of strata occur in the neighbourhood of Khewrah, which we call the sandstone and salt formation of the salt range. GEOLOGICAL DESCRIPTION OF MAYO SALT MINES AND ENVIRONS.

2. This formation is far the most prevalent. Of much less importance, where the salt mines are concerned, is the nummulitic limestone formation, which overlies the other, and appears only, in small parts, in the immediate neighbourhood. Another formation, that is, the coal formation of the salt range, occurs only in traces. We have a recent formation on our map, that of debris from destroyed strata of the salt formation. There is also trap, but in such small quantities, and cropping up so frequently, that I had no time to bring all the out-croppings on the map.

3. The sandstone and salt formations are divided on the map into altogether seven different strata.

Division of Strata.

The following are all the strata from above downwards :—

Strata.	Thickness.	Average.
Recent form—Debris of Gypsum, &c.	... 100'—200'	150
Limestone form—Nummulitic limestone	... ...	200'
Coal formation—Coal, Alum shale and Marl	... ...	20'
Sandstone formation. { Green Sandstone .	... ...	600'
Blue marls ...	100'—150'	125'
Red Sandstone ...	100'—500'	600'
Salt formation—Upper layer of white Gypsum	5'	5'
Brick-red marl, or Gypsum	60'—200'	130
Brown Gypsum ...	80'—200'	140
Lower layer of white Gypsum ...	200'	200
Salt marl and salt	600'	600'
Volcanic—Trap piercing through the lower strata up to the boundary between the upper layer of white Gypsum and red Sandstone.		
The total thickness of the—		
Sandstone formation is ..	... 1,325 feet.	
Salt formation ...	... 1,075 "	
Total sandstone and salt formations ...	2,400 feet.	

4. The most characteristic strata of this formation are the green sandstone and the brick-red gypsum. The former constitutes the crown of all the heights. The brick-red gypsum crops out on the base of the hills, and in the gorges, and is the indicator of the salt formation all over the salt range. There are enormous quantities of brick-red gypsum at Khewrah, not only low down in the gorges, but high up towards the summit of the hills, indicating the enormous riches of salt within them.

5. The Geological Sketch Survey, Map No. I, consists of one ground plan and three vertical sections.

6. The superficial structure of the neighbourhood is as follows:—

The base of the hills extends from west to east. The plains extend to the south. A large gorge, the Mitthapatian, or Khewrah Gorge, stretches through the midst of the hills from north to south. This gorge has various side gorges. On the right side Girum Kass, Kcari Kass, Ghamma Kass, Gaeder Kass. On the left side, Attral Kass, (this is not down on the map), Kalre Kass, Little and Great Blunder Kass, Biliwalla Kass, Nerwary Kass and Utschle Sowri Kass. Parallel to the Great Khewrah Gorge are the Sandre Kass and Malkana Kass, both on the east. To the west we have another large gorge running from east to west, called Daleeri Kass. This Daleeri Kass has three side gorges running up to the right, the Jaleeanwalla Kass, Atalra Kass, and Kalapanee Kass.

7. Two large hills form the northern boundary of our map, the Tobar hill and the Anhere. These lie in line with the other high part of the range and stand like two colossi one on either side of the Great Khewrah Gorge. The Anhere is towards the east connected with a range of other sandstone hills, which tend southwards, and become gradually lower in that direction, until they nearly reach the plains, and the eastern boundary of our map is therefore formed by sandstone hills like the northern boundary. To the south we have again two groups of sandstone hills on each side of the great gorge. On the right are the hills of Siroola, Ootti, and Mahri. The Drangur hill stands to the left. These hills, with the exception of Ootti, are all very low. One conical hill of sandstone stands in front of the eastern boundary of sandstone hills, and is called Dher. To the west beyond the boundary of our map, a break occurs in the hills running south, the plains cutting in between them. Within the circle of sandstone hills lies the great salt formation of Khewrah, which is here raised to a considerable height, so that the treasures of salt which it contains are easily accessible at a level above the water level of the gorges. The raised salt formation is divided by the Khewrah Gorge into two parts. The smaller part to the east consists of the Mayo Salt Mines Hill, and a small range of gypsum hills south of it. The larger part of the salt formation to the west consists of the hills, Niwri, Leenda, and Gitealli. The latter, especially, is very much higher than the Mayo Salt Mines Hill.

8. The geological formations extend themselves as follows:—

Great masses of limestone are deposited above the green sandstone in the north of Tobar, Anhere, &c. We also very soon reach this formation, when going up the Khewrah, or Mitthapatian Gorge, a little further northward than our map illustrates. On the map the limestone appears at four places, *viz.*, behind Tobar,

above Anhere, at Ruttceebunny, or Chowkee 21, and east of Nerwary, between Dherand Drangur.

9. The green sandstone, as mentioned before, crowns all the heights, except those of the salt formation, and is found on the summits of all the sandstone hills just described, and also exists in large quantities on Drangur. The two other strata of the sandstone formation, the blue marl and the red sandstone, form annular belts round the green sandstone. The blue marls form a narrow ring, the red sandstones a wider one. All the latter, east of the gorge, forms one continuous tract, if we except two very small bits on the top of the Mayo Salt Mines Hill. West of the great gorge, we have a continuous tract of red sandstone, running due north and south.

10. The salt formation begins with the brick-red gypsum, if we omit the small layer of white gypsum which mostly, but not invariably, occurs between the brick-red gypsum and the red sandstone. The brick-red gypsum crops out on the south side, on the slope of the hills towards the plains, and again far up in the Khewrah Gorge below the sandstone formation. It surrounds the great raised centre of the salt formation, and for the most part covers it. The red gypsum is a most peculiar brick-red coloured mixture of clay and crystallized gypsum. One might as well call it brick-red marl, but I prefer the former expression, because the gypsum is the principal constituent of the mixture. Below the brick-red gypsum, the brown gypsum appears. This mixture is similar in composition to brick-red gypsum; there is only a difference in the colour, that is, it is brown instead of brick coloured. Large masses of this so-called brown gypsum appear in the Khewrah or Mitthapatan Gorge, between Kalre Kass and Bhunder Kass on the left side, and opposite these again on the right side of the gorge at the foot of Tricki hill. Much brown marl appears up along the Bhunder Gorge, and still more all up Keari Gorge. Below the brown gypsum lies a thick layer of white gypsum. This is coloured on the map with cobalt blue, the same as the small layer which occasionally occurs between the brick-red gypsum and the sandstone formation. We call the latter the upper, and the former the lower white gypsum. These lower strata are much developed in the Bhunder, Malkana, and lower end of the Biliwalla Gorges. There are also complete hills of it, one south of the Deputy Collector's bungalow, opposite to Leenda and Gitealli, and another further to the south, the "Lari Lara Ke Kabar." (Name derived from the plunder and murder of a marriage procession). There is a nearly continuous formation of this stratum extending from Biliwalla Gorge to Malkana Gorge, all along the slope of the hills west and south of Drangur, which includes layers of limestone perforated with small holes. This latter which is only a few feet thick, but very pure, occurs in the Bhunder Gorge, in Malkana Gorge, and even in the lower part of Biliwalla Gorge, &c. The Gitealli hill takes its name from the large quantity of small pieces of this limestone lying about on its summit.

11. The next deposit below the gypsum is the salt marl which includes the strata of pure workable salt. It appears on the surface at the following places:—On the Mayo Salt Mines Hill, on the south-west side extending from above Buggy mine to below Phurwalla mine, on the south-east side of the Mayo Salt Mines Hill, between Soojewal mine and the old Chingwalla mine, and beyond Chingwalla. The salt seam also crops out in the first

water drain above Soojewal, and in the deep cutting of the road from the Mundi to Soojewal, east of Biliwalla mine. The next considerable outcropping is at the foot of Mount Leenda. Opposite this place on the left side of the gorge along the foot of the gypsum hill, near the Deputy Collector's bungalow, the salt shows itself at various points, proving its uninterrupted connection. The salt in former times must have extended over the gorge, and its removal by water may have very much contributed to the formation of the Khewrah Gorge. There is also salt up at Niari, for on the left side of the road going up the hill very near No. 31 Chowkee, a single block of salt is to be seen amongst the debris, twenty feet above the base of the Khewrah Gorge, at the mouth of Ghamma Kass. Crossing over these hills to the west, we find at their foot, in the Daleeri Gorge, two groups of old salt mines, and still further to the west we see salt cropping out in the gorge itself. An entirely detached piece of salt similar to that in Ghamma Kass is also visible on the road from the Mundi to Soojewal to the right near the Soojewal Chowkee. This piece of salt lies in the debris of gypsum and salt marl. These are all the places where salt crops out, except in one instance, which is most interesting. In Kabra Kass, contrary to all rules, the salt crops out for a length of forty feet between the brick-red gypsum and the red sandstone.

Salt brine.

12. Salt brine is an invariable companion of the salt in the range.

Stream of sweet water.

13. The Great Khewrah or Mitthapatan Gorge brings a small stream of perfectly sweet water from the limestone strata near Choah. This stream is intercepted at a place in the midst of the red sandstones by a weir built across the gorge, from which the sweet water is carried down the gorge to the village of Khewrah by an aqueduct. Below it, yet in the reach of the red sandstone, the water becomes saltish, and more and more so, till it leaves the hills a perfect brine. There is a very small well of saltish water in the upper part of Biliwalla, south of Chingwalla, on the left side of the gorge. It comes, therefore, out of that range of hill which lies between Biliwalla and Nerwary. There is also salt water in the Daleeri Kass, and sweet water comes from a well high up at Kalapanee. During all seasons there is also sweet water in the Sandree Kass.

Debris formation.

14. An important, although quite recent formation, remains to be spoken of, that is, the formation of debris from disintegrated strata of salt marl and gypsum, mixed with clay, into a compact mass, very hard when dry, and consisting of gypsum, the above-mentioned limestones from between the gypsum, red and green sandstones, and brown clay, which in some instances even contains great pieces of pure rock salt. The largest masses of this formation lie on the south and west sides of Mayo Salt Mines Hill, where in course of time, large strata of salt marl have been washed out. Another large deposit of this debris is in Daleeri cut through by various side gorges. The old mines in Daleeri lie behind this debris, some of which is also met with on the slope of Niwri hill, where the salt crops out near Chowkee 31.

VOLCANIC FORMATION—TRAP.

*VOLCANIC FORMATION.
Trap.*

15. Black trap filled with stellated crystals appears all over the great salt formation. It always crops out on the top of the

brick-red gypsum, on the small layer of white gypsum, between brick-red gypsum and red sandstone. The quantity is nowhere great, and sometimes the veins are scarcely one foot thick. The number of places where it appears is so great that I would not have had sufficient time to show them all on the map. It is found nearly everywhere between the salt and sandstone formations; for instance, high up in Mitthapatan Gorge, at the mouth of Attral Kass, on the north side of Mayo Salt Mines Hill, and all over the brick-red gypsum, and white gypsum, from Nerwary to the upper end of Blunder Gorge, also upon Niwri, &c., &c.

16. It has not been met with in the mines, but there is no doubt that some time or other it will be found there, because it must have forced its way through the salt strata in order to appear on the surface of the brick-red or upper white gypsum.

STRIKE AND FALL OF THE STRATA.

17. There are two causes which have determined the ultimate position of the strata in the environs of Khewrah. The one is the general elevation of the salt range striking from east to west, and the other; the special elevation of the salt formation on both sides of the Khewrah Gorge. This latter elevation must have taken place simultaneously with the eruption of the trap. The great sandstone hills in the north, Tobar, and Anhere, fall to the north. The southern sandstone hills, Drangur, Siroola, and Mahre, fall gently to the south. Those hills which form the eastern boundary lie generally horizontally (see the three vertical sections on Map No. I). Corresponding to the sandstone strata lie those of the salt formation, directly below. In the midst of the belt of sandstone hills is the great raised centre of the salt formation, which is divided unequally by the Great Khewrah Gorge. The strata of this central salt formation fall northwards and southwards and dip below the sandstone strata in the east, gradually dipping also at their western extremity towards the west. The eastern part of the salt formation is cut into very deeply by the Biliwalla Gorge, and large salt strata must have formerly existed, which are now destroyed, and have only left great layers of debris behind, (see vertical section C D). The western part seems still to be covered up. The middle gorge, Ghamma Kass, which corresponds to Biliwalla Kass, is not cut into so deeply, and the salt layers below must be now lying undisturbed corresponding with the treasures of salt which we must suppose to exist below the highly raised Gitcalli, Leenda, and Niwri; but it is doubtful if the pure salt itself is raised so high, everywhere, as to allow of exploration: the following are some of the irregularities in the position of the strata:—

18. The thick layer of gypsum below the Deputy Collector's bungalow, which ought to fall to the south, starting from the midst of the raised salt formation, lies nearly horizontal, and, when approaching Biliwalla Gorge, sinks rapidly to the north. The same set of this layer is noticed near Leenda, opposite the Deputy Collector's bungalow. There has, however, been very great destruction amongst the strata there, most probably caused by previous out-washing of the underlying salt strata, by the water of the Khewrah Gorge. No irregularity exists along the gorge at this place. The strata of gypsum,

Strike and Fall of strata

irregular as their positions are, are identical on either side of the gorge between Leenda and the Deputy Collector's hill. The same polished stones which are found at the foot of Leenda in the gorge are also found opposite, along the road below the Deputy Collector's bungalow.

19. The very high peak, Ootti, consists of layers of green sandstone which are raised nearly vertical. Corresponding with these the red sandstone north of them is also in an upright position. At some places in the Gaeder Gorge it is even turned beyond the vertical, so that the brick-red gypsum which follows it seems to overlie it, whilst its position *must* be below it. Section A, B on the map is drawn across Ootti, Gaeder Kass, and Gitealli.

20. Between Atalra Kass and Kalapani Kass lies, in the midst of red sandstone, a detached piece of blue marl, which looks as if it had slipped down to that place from a higher point.

21. There are no known strata at this place underlying the salt strata. The thickness of the latter is calculated at 600 feet from measurements of the Mayo Salt Mines Hill, but we have never reached the bottom of the strata there. The number of these is five, but some of them might on future exploration prove to be identical, and thus the real thickness of the known strata would be less than as above estimated.

22. The Mayo Salt Mines Hill is isolated by gorges on three sides, and on the fourth, which is not so much isolated, the strata dip down under the sandstones in such a way that the salt gets out of reach of exploration by the present mode. The probable extent of the strata of the Mayo Salt Mines is therefore pretty accurately known from all sides. The area over which salt can exist, above the level of the Khewrah gorge, is seen in Sections E, F and C, D, Sections A, B and E; F show also the supposed area of the reachable salt strata west of the Khewrah Gorge, and we find that the area of the latter is equal to four times that of the former. The distance from Chowkee No. 31, where salt crops out on the eastern slope of Niwri, to the nearest old mines on the western slope of Gitealli, is a whole mile, and over all this space we must expect the salt on both sides to be connected.

23. The thick salt seams in which the mines are worked, are built up from successive smaller layers of salt. These layers we may properly call year-rings or annual formations. Each layer represents the formation of salt in the great brine lake during the period of one year.

24. These annual deposits vary in thickness from half a foot to two feet. The salt is whiter in the middle of the layer than elsewhere. The edge of the layers is red, and clay even occurs, more or less, between some of them. At some places the clay between the year-rings is impregnated with Epsom salt which shows itself in the form of an efflorescence. As we shall see hereafter, at one place in Phurwalla mine, an extraordinarily large quantity of Epsom salt is accumulated in a marl which covers the Phurwalla salt seam.

25. The following minerals are found in the environs of Khewrah:—

Coal and Alum shale.

26. The coal is found with alumshale at Rutteebunny, the former one foot thick, the latter two feet thick overlying the coal.

MINERALS.

Coal and Alum shale.

27. It seems that the formation to which this coal belongs is independent of the sandstone and the limestone formations, and only occasionally appears between them. About four miles north-west from Khewrah are the coal mines of Pid, where coal has been worked for some time out of a seam four feet thick. At this place layers of limestone with graphites lie immediately above the coal formation. Some laminated coal or coal-slate is found even in Khewrah gorge at the mouth of Attral Kass, north of Kalri Kass. It is, however, very difficult to say what formation it belongs to.

28. *Salt*.—The salt which is worked out from the Mayo Salt Mines is of a purity such as few known salt mines of the earth can yield. There is no such salt in England, nor in most mines on the Continent. Sometimes beautiful clear crystals are found several inches in diameter.

SALT.

The colour of the salt from the mine is generally red (brick-colour), but sometimes more or less white.

For chemical analyses of Lahore salt and of the Khewrah salt, see page 90.

Epsom salt.—Sulphate of magnesia is found in very small quantities between the salt layers, and in a larger quantity in the salt marl at a certain place in Phurwalla mine.

EPSOM SALT.

Gypsum.—This constant companion of all salt layers is in abundance at Khewrah.

GYPSEN.

White gypsum, brick-red gypsum, and gypsum in crystals or selenite are there in great quantities.

The white gypsum of Khewrah makes a good plaster and is also used for masonry. No anhydrite has been found up to the present time.

Calcite.—Carbonate of lime,—incrusted one inch thick, of a beautiful white colour,—are found on the top of some hills in the green sandstone strata.

CALCITE.

Trap.—Trap is found at many places. It is of a black colour and full of stellated crystals.

TRAP.

In the trap is found—

Quartz in nodules.—Of half an inch in length. *Quartz crystals* of a reddish colour, half an inch thick, are met with between the gypsum and red sandstone. Some of the crystals which I found were enclosed in gypsum.

QUARTZ IN CRYSTALS AND NODULES.

Iron pyrites.—Are found in the coal, in the limestone, and in small quantities in the gypsum.

IRON PYRITES.

Iron ore.—Hydrous oxyde of iron is found in the nummulitic limestone in the form of decomposed crystals of iron pyrites. There is also a layer of very weak iron ore on the base of the nummulitic limestone. It is mixed with a hard clay which contains no lime.

IRON ORE.

This iron ore appears at Rutteebunny in large quantities. I also met some of it near the coal mines at Pid.

Galena.—Sulphide of lead is found in small cubes of one-eighth to one-fourth inch thickness on the green sandstone hills. It is contained in a dolomitic sandstone, and by decomposition of the latter is spread in small quantities over the ground on the slope of several hills. I found the mineral on the northern slope of the Siroola hill. The natives gather the galena and use it in a finely powdered state as a remedy for inflamed eyes.

GALENA.

WASHING CLAY.

POLISHED STONES.

CASTS OF SALT CRYSTALS
IN SANDSTONE

Washing clay.—A clay is dug out by the natives at various places, and used for washing cloth. The substance is of a violet colour and may be the result of decomposition of trap. It is found in the strata of the lower white gypsum.

Polished Stones.—Stone slabs with beautifully polished black surfaces are found between the layers of gypsum at the foot of the Leenda hill in the Khewrah Gorge. The same slabs, but not of such great beauty, occur also on the opposite side of the gorge below the Deputy Collector's bungalow.

Casts of salt crystals in Sandstone.—Very interesting is the occurrence of the casts of salt crystals on sandstone slabs in the upper green sandstone formation. The very same pseudomorphous crystals are found in Cheshire above the salt formation, and in Germany they appear in the Keuper formation which overlies the salt-bearing muschelkalk. The formation of the crystals is explained in the following way:—

On a flat shore covered with a layer of freshly deposited mud after the evaporation of the salt water, the resulting salt crystals were formed in the mud in such a way that half of their surface was exposed and the other half lay buried. Further evaporation caused the mud to harden. After this had happened the level of the sea-water again rose, and the tide flowing over the hardened mud dissolved the crystals, bringing sand which was deposited in a thin layer over the mud. This sand also entered into the spaces left by the dissolved crystals, forming casts of them. Other layers of mud and sand settled upon the first ones, and the same process of crystallization may have been repeated or not. In the hardened state in which we now find the layer,—the mud as marl, the sand in the form of sandstone slabs,—the casts of the crystals are all found as they ought to be found, *i. e.*, on the *lower* side of the sandstone slabs. They appear when the marl is washed away by the rain. Some crystals are very beautiful and show that pyramidal form which is so characteristic of salt produced by evaporation.

II.—Description of the hill in which the Mayo Salt Mines are situated (with Map No. II.)

29. The Mayo Salt Mines Hill is bounded on the west by the Great Khewrah Gorge, on the north by the Great Bhunder Gorge, and on the south by the Biliwalla Gorge. On the eastern boundary the side gorges of Bhunder and Biliwalla have a watershed between them by which the hill is connected with the sandstone hills eastwards. The upper part of the hill, which is represented by the 600 feet contour line, is of oblong shape, extending east-south-east to west-north-west and depressed on the south. On the south side the hill is at first very steep and afterwards falls gradually towards the Biliwalla Gorge, which is 50 to 100 feet deep. On the north the hill slopes very gradually from the summit and then falls down so abruptly to the Bhunder Gorge that, for the greater part, it is impossible for one to descend into from the hill. The south-western slope of the hill is partly occupied by the village of Khewrah. The rest of the village with the Government buildings occupies the space between the Great Khewrah and Biliwalla Gorges.

30. The Government buildings consist of a salt-weighing house, 130 feet long and 45 feet wide, with four pairs of scales; Moonshee's barracks on a space 130 feet long and 110 feet wide; and a serai 300 feet long. There are also two bridges on the

MAP SECTION OF THE MAYO HILL

Government Estate.

road to Pind Dadun Khan, a small one crossing the mouth of the Biliwalla Gorge and a very large one crossing the Khewrah Gorge (see Geological Map No. I).

31. Map No. II shows how far the different mines extend into the interior of the hill. The Buggy mine does not penetrate far into it, but only goes up to the 600 feet contour line and is still 1,000 feet from the centre of the hill. Phurwalla and Mukhad mines only occupy a small belt in the southern corner, outside of the 600 feet contour line. The Soojewal mine alone approaches the centre of the hill, but it cannot extend much farther to the north-west on account of the falling down of the strata. The other old mines are mostly still nearer the surface. On the whole northern side of the hill no salt at all crops out, but towards the south, the contrary is the case. The action of the water in the rains on the salt, or salt marl, is very considerable. Various measures had to be taken to protect even the mines at present worked from the destructive action of the water. There is a large crater in the gypsum above Soojewal (see 600 feet contour line). From the bottom of this crater holes are excavated by the water in some salt layers, and the outflow of the water through the hundred feet drift, which was made to drain the crater, is interrupted. When this drift is repaired, the fresh water will flow through it southwards, and be carried away by the drain, which is constructed behind the mouth of the Soojewal Tunnel. If the water had been left in the crater, and no outflow had been provided, a natural shaft might in a few years have been hollowed out by it right into the Soojewal mine. We have a large specimen of such a shaft in the so-called Kabuterketred, which goes down from the surface of the hill into Phurwalla mine and is 212 feet deep. Another very deep shaft has been formed by the water at a place south-east of the Phurwalla mine entrance and south-west of the Soojewal Tunnel entrance. This shaft is not so wide as Kabuterketred, and is as regular as if it had been made artificially. A very large crater of 200 feet diameter has been formed in the salt marl west of the Phurwalla mine entrance. There is a second crater, not quite so regular, south of the former. Several slips have also occurred on the steep side of the hill owing to the action of the water. One slip caused the falling in of part of the Thomson's drift, which leads into the Buggy mine. Another is ready to occur on the slope of the hill east of the Soojewal mine. There was a small drain made here, but without success. The place is just in the level of the 700 feet contour line, and on the map it is marked "Earth cutting for water drainage."

32. To the destructive action of the water on the salt hill is chiefly due the falling in of the old mines. We must therefore work the salt mines as safely as possible in future, not only for the sake of the miners, but also in the interests of Government.

III.—*Description of the Salt Mines and the present mode of working, (with Map No. III.)*

33. Embedded in the salt marls of the hill at Khewrah are the various thick seams of pure salt, which form the resources of the Mayo Salt Mines.

34. Those now worked are called the Buggy and Soojewal mines. The next largest excavations are the Phurwalla and Mukhad mines, neither of which are worked now, but are open,

Description of the mines

Disused Mines.

and have been surveyed. There was another large mine, Chingwalla, east of Soojewal, but its entrances have fallen in. Very little is to be seen of the Biliwalla mine, and some others are mere holes, or are entirely covered up now, such as—

Fakira-ki-truddi.

Mutwalla.

Lawala.

Shaho, &c., &c.

The situation of all these mines is given on Map No. II. The vertical section through the four surveyed mines (Map No. III) shows the workable salt seams which are now known, in the following order from above downwards:—

	Salt. Ft.	Salt marl. Ft.
Buggy mine—Upper seam ...	... 25	...
Marl seam ...	... ...	10
Middle seam ...	... 100	...
Marl seam ...	... ...	25
Lower seam ...	... 50	...
Between Buggy and Soojewal, marl	... ...	100
Soojewal mine—Soojewal seam	... 50	...
Between Soojewal and Phurwalla, marl ...	... ...	140
Phurwalla seam	... 50	...
TOTAL THICKNESS	... 275	275

The Mukhad salt seam has only been surveyed to about 30 feet thick, but it is doubtless the upper and eastern continuation of the Soojewal salt seam.

Workable Salt Seams.

.35. There are five workable salt seams, with an aggregate thickness of 275 feet. Between these lie salt marl strata, and thin, unworkable salt seams, in all at least 275 feet thick, making a total thickness of 550 feet. To these we may add 50 feet of marl over the upper Buggy salt seam and thus estimate the whole thickness of the known strata to be equal to 600 feet. It is, however, not quite certain if some of these strata may not in future be found to be identical with each other. It is certain, however, that the Phurwalla seam is not identical with that of Soojewal or Mukhad, because the Phurwalla mine lies immediately below the Mukhad mine. Yet there may be a relation between the Soojewal and Buggy salt seams. The Soojewal seam may not actually be connected with the Buggy seams, yet the former might be a detached part of the latter, separated by a fault in the stratum, and yet originally one and the same stratum. If this be the case we should not have to count so many seams. The question will probably be decided after a connection has been made between Soojewal and Buggy. For the working of the mines it is immaterial whether the strata of both are identical or not, because the manner in which both salt deposits are supposed to extend remains the same in either case. The position of the four surveyed mines is clearly shown by the ground plans (Map No. III). The size of the mines will best be conceived from the quantity of salt which has been excavated. Each cubic foot of excavation we take to equal $1\frac{1}{3}$ maunds of salt. It is not less than this, because the wasted small salt

which lies on the floor of the mines is already deducted and is not added to the excavated space. The following are the dimensions and contents of the four surveyed mines:—

Dimensions and contents of the four surveyed mines.

MINE.	BUGGY.	SOOJEWAL.	PHURWALLA.	MUKHAD.
Length parallel to the strata in feet	350	800	800	400
Width in the slope in feet	125	350	125	150
Thickness of the excavated stratum in feet	192	30	30	30
Cubical contents	81,00,000	81,00,000	30,00,000	12,00,000
One-fourth deducted for pillars	21,00,000	21,00,000	.....	.....
Remaining cubical contents	63,00,000	63,00,000	30,00,000	12,00,000
Maunds of salt (1½ per 1 cubic foot)	81,00,000	81,00,000	40,00,000	16,00,000

Total of maunds in the four mines ... 2,21,00,000, equal to 1,65,00,000 cubic feet of excavated space.

36. Under British rule, from 1850 up to 1870, there has been a quantity, amounting to one hundred and

Quantity of salt extracted under British rule.

* Para. 83. fifty-four lakhs* of maunds taken out. This, however, has not been procured from these four mines only; a large quantity has also been extracted from Chingwalla and other inferior mines.

37. There is a large quantity of small salt lying waste in the mines, because the traders cannot use it. The now accumulated small salt, as well as all that will result from the future excavations, would at once come into use when railway communication should be established. From Soojewal alone, at the very least, fifteen lakhs of fine salt could be extracted, with no further expense than that of removal.

Small salt now unused will be utilizable in future.

38. Taking into account all the other small mines, we may estimate the whole amount of salt taken out of the Mayo Salt Mines Hill up to the present time at 300 lakhs of maunds.

Estimate of salt obtained from the Mayo Hill Mines.

Description of the four surveyed mines.

39. The Mukhad mine, situated above Phurwalla, occupies the southern corner of the salt hill, and lies south-east of Buggy and south-west of Soojewal. Its entrance is 361 feet above the zero point in the mouth of Biliwalla Gorge, and the mine itself is so situated that the seam in which it is worked must be considered as the south-western continuation of the Soojewal salt seam. The entrance drift, 300 feet long, is narrow and very irregular. The eastern end of the mine I saw in April, and the roof became afterwards so dangerous that no ingress to that point was possible when the survey was made. I therefore only surveyed the western chamber of the mine and the entrance. There may be other workings to the north belonging to this mine, but they could not be entered. As far as they extend, the future working field of Soojewal mine is consumed. The strata in the mine dip towards the north-east.

MUKHAD MINE.

Description of

40. The eastern end of the mine must be very near the Matthew's drift of the Soojewal mine and could be easily connected with this drift, but that there is no necessity for it now. The whole south side of the mine is very near the surface of the hill. In Plan III the outlines of Mukhad mine are drawn in blue, to distinguish them from the Phurwalla mine below.

PHURWALLA MINE.

Description of

41. Phurwalla mine lies in a distinct salt seam, 200 feet deeper than Mukhad. The entrance starts outside from a level of 235.5 feet. The average level of the floor of the workings is little over 100 feet. The salt had therefore to be raised by the men in the drift to a level difference of much more than one hundred feet. The drift is about 400 feet long, and is not only steep, but also very uneven. It is very narrow and crooked besides, and yet by this road men and women and children have carried forty lakhs of maunds of salt out of Phurwalla. Most of the roof is very dangerous and ready to fall in. There is a pool of brine in the mine, between which and the beginning of the narrow eastern chamber there is a regular heap of fallen debris and large rocks of salt piled up; the roof has become much higher here by the falling in of these masses. From this heap a little further east and on the north side of the mine are some well preserved workings, which show that a quantity of salt still remains undisturbed on this side. Some workings extend also to the north, but they have been flooded by brine. The level of the surface of the brine in the pool is now 84.9 feet above zero in the Biliwalla Gorge. The pool has an influx from the Soojewalla mine. This latter having been endangered by water, the Public Works Department made a drift from it down to this place, as shown on the map. At the present level of the brine in Phurwalla the mouth of the drift dips, so that there is no communication between Phurwalla and Soojewal except through and under water.

Road from Phurwalla to Kabuterketred.

Presence of Epsom salt in this mine.

42. A narrow road leads from Phurwalla to Kabuterketred. This is a large natural shaft, formed by the dissolving action of the water. It is 212 feet deep, and at the base 60 feet wide. From the bottom to the top of Kabuterketred, it is evident that nearly all the sides run through salt, but the muddy state of the surface does not permit me to say whether and how many workable salt strata there are. There is an abundance of sulphate of magnesia, or Epsom salt, in Phurwalla. At a place marked "Sulphates" on Map III, south of the brine-pool, there are large blocks of marl lying on the ground, which have fallen from the roof and are impregnated with Epsom salt. From the roof itself hangs a layer of the same mass, at least seven feet thick, covered all over with a white crust of Epsom salt. One might suppose that this was nothing but efflorescence, yet the fragments on the ground show that the sulphate impregnates the whole mass. The roof at this place is in a very dangerous state. The same sulphate appears in smaller quantities in the other mines. It is embedded with those thin seams of marl which sometimes separate the good salt layers from each other, and it shows itself often as efflorescence. Amongst other places, I found this efflorescence upon marl in Thomson's drift. From it I produced a sample of crystallized Epsom salt by boiling.

SOOJEWAL MINE.

Description of

43. The Soojewal mine is worked on the south side of the hill in a salt seam of 50 feet thickness, which slopes gently to the centre of the hill in the direction north-north-west. It is of an oval form, with its longer axis lying west-south-west to east-north-east. It is bordered on the east by very extensive old workings, part of which belong to the old Chingwalla mine. Northwards the boundary of the mine is limited by the depth to which it may be carried down the sloping salt seam. The west extremity is all fresh working field in which work is chiefly going on now. To the south of the mine and in the

the roof. The quantity of fallen salt and marl may be estimated at half a lakh of maunds. The fallen pillar was that which is represented on Map No. III in the vertical section parallel to the strike. The other pillar which had not fallen and the dangerous part of the roof have since been removed. There is, however, no safety as long as such a roof is left at all. The distance from the floor of the first story to the roof of the fourth, *viz.*, the whole height of the mine, is, in the middle seam, more than 130 feet. The pillars are thus 130 feet high, and they are cut out of the nearly vertical salt seam, with great liability to fracture along the salt layers. If there were no middle roof at all, and the pillars went clean up 130 feet high, it would be neither more nor less dangerous than to have two of half the height standing vertically above each other with a thin middle roof between them. This middle roof is therefore of no use, nor are single pillars good. The seam, although very upright, does not lie vertically, and this makes the single vertical pillars still more unfit for supporting the roof of this mine. We shall be obliged to relinquish this system, and the only alternative in this case is to leave, instead of the single prismatic pillars, complete walls of rock salt across the strata. This method is intended in the future working plan. In story No. II, middle seam, a horizontal drift, 70 feet long, 6 feet wide, and 7 feet high, has been worked into the salt. It extends 100 feet, and was designed for the purpose of making workings behind the present boundary of the chambers. If these are started, they will most seriously injure the future working plan and lead to a further progress of the lower workings beyond the upper ones, which is against the rules. I rather wish to make use of this drift for the benefit of the future workings. I should elongate it still more and let it slope upwards in such a direction as to reach the future parallel gallery No. 4. This parallel gallery could then at once be driven far in advance of the old workings. The first story of the upper seam, as well as the south-western part of the deep workings in the middle seam, are flooded with water. A Persian water-wheel was constructed to lift the water sufficiently high to allow it to flow out through Thomson's Drift, but this wheel was smashed by the great fall of salt on the 5th June 1870. The upper chamber in the lower seam has only one story, which is to be counted as No. III. The lower chamber has two stories. At the south-western end the two chambers unite into one, without an intervening roof between stories II and III, just like the large Sikh chamber in the middle and upper seam. A new upper chamber has also been commenced in the lower seam, in advance of the old one. This was started by driving a drift from the middle seam through the 25 feet marl seam. It is shown in the ground plan of the lower workings, and will be recognised by its perfectly circular form. All the other chambers in Buggy, with this exception, are worked and advanced only at their north-east end. This one circular chamber enables us to attack the lower salt seam at three places instead of one. It is an illustration on a small scale of that system which is proposed in the new working plan, *viz.*, to go forward by means of a few drifts over a large area of the salt-field, and then attack it simultaneously at several points. At some points in the Buggy mine, for example, in the low workings of the lower seam, a great number of miners are all placed on the same floor and are working downwards simultaneously. This method of working must have been introduced in consequence of the want of space and is not good.

We ought not to work down a whole level at the same time, but work in steps, following each other. The miners ought to be placed on the top of each step and allowed to blast the salt down with a free space before them. As they blast away, the steps advance and always retain the same form with relation to each other. There have been two drifts made in Buggy to examine the strata above and below the salt seams. One drift, which is closed since the great fall of salt above alluded to, goes from the upper seam into the marl, 40 feet long. It shows salt marl with a few salt seams, not above 2 feet thick each. Another drift from the upper chamber of the lower Buggy seam into the lower strata is 20 feet long horizontally, and shows salt marl.

50. The Buggy Mine has, like Sojewal, three entrances. There is a long new drift by Thomson, an old Sikh drift which is the entrance at present used, and a ventilating drift by Purdon.

Entrances to the Buggy mine enumerated,

51. This latter is set in timber, and is 260 feet long. Its outside mouth is 130 feet higher than that of Thomson's drift. The entrance drift at present in use is a miserable, tortuous, undulating passage, the mouth of which at the salt depot has a level of 145.3 feet, while it crosses Thomson's drift at a level of 102.0 feet. Thomson's drift has a total length of 740 feet. It stands, for its greater length, in loose rock, and a part of it 90 feet long has fallen in.

and described.

52. A temporary parallel drift has been cut to avoid this place. Thomson's drift is ten feet high and nine feet wide. It serves no other purpose now than for ventilation. It cannot drain the deep workings of the mine, being much too high. No transport of salt takes place through it except at one small part of it, and all the salt is taken to the depot through the old Sikh drift. Thomson's drift was intended for a tramway by which to bring the salt directly from the Buggy Mine to the Mundies. The reason why this tramway was never laid and used may have been due to the necessity of an entire change in the system of storing the salt and paying the miners which would have been involved by the introduction of tramway carriage, and which must now be carried out with the new working plan. Each miner now brings his salt to the depot and makes a separate heap of it there. Each heap is separately sold to the merchants, and the miner receives his wages according to the number of maunds which his heap turns out in the merchant's bags. Such separation of each miner's salt cannot co-exist with the carriage of the salt on the tramway. The salt which is carried out on the tramway must be Government property, and we must introduce a system which will enable us to take charge of the salt of each miner before it is loaded into the wagons. There is of course no idea of weighing the salt in the mine, and we must naturally fall back on that method in use in so many mines, that of paying the miner by cubical measurement of the excavation which he has made. We can associate small parties of men together, four to six will be sufficient, and let them work on common account in one Kutte, or in one step of the Pur of one and the same gallery, and measure their work monthly.

Thomson's drift described.

Reason why projected tramway was never laid down.

All the salt of the Buggy Mine is carried out through the old Sikh entrance, as mentioned before. Into this entrance it is brought by two different ways—one part is brought through the lower chamber of the lower seam workings, and the other part comes from the middle seam workings, going by the drift which connects the middle seam with Thomson's drift, and through part of the

Present mode of estimating wages of miners used.

Thomson's drift itself. The number of carriers who have to pass through the old Sikh entrance is very great. All the carriage is concentrated at this passage, whilst in Soojewal two passages are used, one of them very broad. The number of journeys to and fro which the carriers make daily is twenty to the more distant points in both mines. From near points they make twenty-five and even thirty turns in a day, and they are eight hours at work. The adults bring out 30 seers of salt at each turn; sometimes they also carry large pieces, weighing over a maund.

Mode in which excavation is now conducted.

53. As regards the miners, we have seen that they work in three different ways in Buggy. First they work forward from a certain floor into the rock salt. This is called the "Kuttee" and is the most troublesome. It is nearly as hard as driving drifts, and the miners have at first a good deal of pick-work before they can blast. As they go forward with the "Kuttee," they gradually work the roof down, which is called "Chuth." For this purpose they sit upon tripods, some of which are 25 feet high. When they have advanced with the "Kuttee" and "Chuth," they begin to work the "Pur" from behind downwards. This Pur ought to be very easy work, but it is not, because from want of space, it cannot be carried on in regular and advancing steps. Instead of that the miners work the "Pur" down all at once over certain areas, which are marked out to them. This, as already mentioned, is the case in the low workings of the lower seam in Buggy, and the deep workings of Soojewal are another example. About 80 men are there working down the bottom of a chamber which is 300 feet long and 40 feet wide. These deep workings are the only "Pur" work in the Soojewal Mine. In all other working parts of this mine, the "Kuttee" is driven forwards on the floor of the salt seam, and the roof is worked upwards as "Chuth." This is the very contrary of what I propose in the new working plan. I want to work the Kuttee on the roof of the salt seam, and the remaining salt will all be worked down to the bottom of the salt seam as "Pur." This same method I wish to employ in this Mine, by working a Kuttee on the top of each chamber and getting the remaining salt out from below by steps.

Subjoined table gives details of mining operations.

54. The following table gives the number of miners and carriers at work in three previous years and the quantity of salt which was taken out from both mines:—

Mines.	Year.	Miners.	CARRIERS.		salt.
			Adults.	Children.	
Soojewal	1867	189	237	192	5,76,991
	1868	193	228	106	5,22,045
	1869	185	223	211	4,47,492
Buggy	Average	189	229	170	5,15,186
	1867	217	238	167	5,02,316
	1868	189	209	103	4,73,168
	Average	197	214	232	5,47,003
	1867	201	220	167	5,07,526
	TOTAL OF AVERAGES	390	449	337	10,22,712

MINES, KHEWRAH SALT RANGE.

55. The production of salt, number of carriers, and number of miners, are about the same in both mines. Work ceases during the rainy season, and also when the stock of salt becomes too large. We may calculate upon eight working months in the year; and during these months the miners and carriers only work four days in the week. They keep away on Sundays, Tuesdays, and Fridays. This leaves only 138 working days in the year. Three hundred and ninety miners produced on the average of three years in 138 days 10,22,712 maunds of salt. In one day they produced 7,411 maunds and each miner 19 maunds daily.

Further statistics connected with excavation of salt.

56. We, however, estimate the work of a man at 20 maunds daily, because the above-mentioned number of miners are not always present. The carriage is estimated at the rate of about fifteen maunds a day by an adult and five maunds by a child. The miners receive 4 Rupees for every 100 maunds. Of this 1 Rupee is considered as pay for carriage, of which no separate account is kept. The miners have to pay 1 anna 10 pies per hundred maunds to the Dhurwais or weighmen.

Miner's earnings.

57. A miner uses one-fifth of a seer of powder a day, at five seers per Rupee, and one-eighth of a seer of oil, at three seers per Rupee. The value of the former is 0.64 annas, that of the latter 0.67 annas. They also pay about 1 Rupee annually for their tools. Taking all this into consideration, the miner's pay is as follows, excluding carriage—

and expenses.

		Annas.	Percentage.
Daily pay for 20 maunds of salt, at Rs. 3 per 100 maunds	...	9.60	100.00
'Dhurwais' fees	...	0.37	3.82
$\frac{1}{5}$ th seer of powder	...	0.64	6.67
$\frac{1}{8}$ th seer of oil	...	0.67	6.94
Tools per 20 maunds of salt	...	0.10	1.04
NET BALANCE OF WAGES	...	7.82	81.53

Carriage.—The earnings of carriers are as follows:—

Carriers' earnings and expenses.

1 Adult 15 maunds of salt daily at Re. 1 per cent. ... 2.40 annas.
1 Child 5 do. do. 0.80 "

From this, about $\frac{1}{2}$ an anna must be deducted from the earnings of the adults for oil, which leaves the daily earnings of an adult carrier at 1.90 annas and of a child at 0.80 annas. The cost for production of 100 maunds of salt is now 4 Rupees, and this amount is divided into the following charges:—

Entire cost of delivering 100 maunds of salt.

Net wages of the miners	... 2 Rupees	7.14 annas	61.16 per cent.
Pay to the Dhurwais	...	1.83 "	2.86 "
Miner's powder 1 seer	...	3.20 "	5.00 "
Miner's oil $\frac{1}{8}$ seer	...	3.33 "	5.20 "
Miner's tools	...	0.50 "	0.78 "
Net wages of the carriers	...	13.00 "	20.31 "
Carrier's oil	...	3.00 "	4.69 "
TOTAL Rs.	...	40.00	100.00 per cent.

Other expenses, carriage. Besides the above, other expenses are borne by the salt, as fees, &c.

Carriage from Buggy dépôt to the Mundi, 8 annas, and from Soojewal dépôt to the Mundi, 1 Rupee, for every 100 maunds of salt.	
Carriage from dépôts at the mines to Mundi	... 12·00 annas.
Carriage of empty bags to the dépôts	... 1·13 "
Paid by the merchants to the Dhurwais	... 0·58 "
Paid by the merchants to the Lumberdars	... 0·58 "
Paid by Government to the Lumberdars	... 0·13 "
TOTAL EXPENSE FOR CARRIAGE AND FEES	... 14·42 annas.

Weighing Expenses.

Weighing expenses incurred by the large merchants per 100 maunds—

Weighment of empty and full bags	... 12·92 annas.
Sewing up the bags	... 3·00 "
String	... 1·50 "
TOTAL WEIGHING EXPENSES	... Re. 1 1·42 annas.

Total cost of production weightment and delivery.

The whole expenses therefore are—

Salt-excavation	... Rs. 4 0 annas.
Mundi carriage and fees	... 14·42 "
Salt weighing	... Re. 1 1·42 "
TOTAL	... Rs. 5 15·84 annas per 100 mds.

IV.—Description of the future working plan (Map No. III).

*FUTURE WORKING PLAN
OF THE MINES.*
Wire Tramway,

58. As a matter of the greatest importance for the future working of the Mayo Salt Mines, it must first be mentioned that there is a project of providing the mines with a wire tramway (Hodgson's patent). This project in the hands of Lieutenant de Wolski, R. E., and favored by the Commissioner of Inland Customs, will doubtless be carried out. The wire tramway will convey the salt from the mines to Pind-Dadun Khan on the River Jhelum, and probably also across the river to Miani. The undertaking will facilitate the transport of the salt so much that its price at the place of consumption will be considerably lowered, and the demand for the produce of the Mayo Salt Mines increased in the same proportion. The tramway will enter the mines themselves and take the salt directly out of them, so that all carriage to dépôts outside of the mines is dispensed with and the salt will only have to be carried within the mines to the loading stations of the tramway, which will be placed about the centre of the workings. It will pass through Thomson's Tunnel and across the large Sikh chamber into the new chamber, Story No. II, in the middle seam of Buggy. The loading station for the Buggy Mine will be in this chamber. From it a connection drift will be made to the water drift chamber in the Soojewal Mine to bring the salt out through it from this latter. It is intended to lead a branch of the wire tramway through this connection drift into Soojewal and to have a second loading station constructed there in the water drift chamber.

A great improvement, supplying a real deficiency.

59. The wire tramway by entering the mines is not only a great improvement, but also supplies a real deficiency. The situation of the mines is most favourable as regards carriage, because they are all inside the hill *above* the level of the gorge into which the salt has to be brought. Yet carriage has been hitherto most difficult. The miners found, in former years,

the shortest way to the salt treasures by going in a slope downwards to the interior of the hill starting from higher points outside. They thereby saved the cutting of a much longer distance through the base of the hill. These old miner's passages although in an improved form have been in use up to this time. The salt is brought from the workings of the mines through them and is stored outside on the slope of the hill. From these store places or dépôts a second transport has to take place down into the Khewrah Gorge to the weighing house. The latter transport, which is nearly as expensive as the former, is done by cattle. The Buggy Dépôt is not very far from the weighing house, but the Soojewal Dépôt lies at a distance of more than half a mile. It is a pity to see so much labor wastefully employed taking salt up to a great height, merely to bring it down again.

60. The driving of Thomson's Tunnel by the Public Works Department forms the first step towards improvement of the Buggy Mine. A glance at the map shows at once that after the establishment of a proper road out of the Buggy Mine, the best road for the Soojewal salt naturally leads through it. This fact is fully acknowledged by the adoption of this road for the wire tramway.

61. The introduction of the wire tramway will do away with the dépôts outside of both mines. The splendid Purdon's Tunnel in Soojewal and Matthews' Drift will then merely serve for ventilation. This will, however, be rendered excellent. A strong current of air will rush down through the entrances of the Soojewal Mine, pass through the connection-drift into Buggy, and out through Thomson's Drift. Besides this the connection-drift will be very useful for the supervision of the mines and also in regard to the safety of the miners. If a slip of the hill should shut up all the entrances of either of the mines, six hundred lives might be lost for want of this connection-drift.

62. Before the project of the wire tramway was resolved upon, I had proposed to take the salt out of the mines and down to the weighing house by means of a wagon tramway with iron rails as shown on Map No. III.

63. The rails were to enter the Buggy Salt Mine by the deepened open Thomson's cutting and by a new low level drift to the floor of the deep workings in the lower Buggy seam. From there we would have made two branches, one to the left for the Buggy Mine going along the great middle seam, and one for Soojewal going over to the seam of this mine by a connection-drift. This latter as given on the drawing would have been much deeper and in a different position from that which will now be made for the wire tramway. Thomson's Drift would not have been fit for the original project, because of its steep ascent. The wire tramway is much more independent of differences of level, and there is no objection to bring it at once through Thomson's Tunnel instead of waiting for the construction of another entrance drift.

64. A low level entrance drift and low level connection-drift would have the advantage of draining both mines entirely so as to allow of their being worked down everywhere to the proper depth without the chance of their being filled with water. There is however not much water in the mines, and the whole quantity is yet so small that in most places workings can be carried down far below the level of the lowest outlets, which are now Thomson's Tunnel in the Buggy Mine and the Phurwalla water drift in Soojewal Mine.

Driving of Thomson's Tunnel, the first step to mine improvement.

The introduction of the wire tramway will cause the abolition of the dépôts at the mines.

Feasibility of a wagon tramway was first considered.

Its proposed course.

Wire tramway is more suitable than a rail way.

A low level entrance drift and a low level connection-drift.

Construction of a deep water-drift in the Buggy mine may now be postponed.

Carriage of salt from the points of excavation to the loading stations of the tramway considered.

Phurwalla seam excluded from the plan.

Soojewal Mine.
Future workings.

Buggy Mine.
Future workings.

65. On this account the driving of a deep water-drift from the Buggy mine can for the present be postponed. Still it will have to be made as soon as the salt-beds are exhausted in the higher levels, should meanwhile no new salt-bed be found above the Buggy Mine or between the Buggy and Soojewal Mines. The working of the Phurwalla Mine cannot be resumed unless a low level drift is constructed. It may be that most part of a low level drift from the Buggy low seam deep workings to the open Thomson's cutting will be in salt, and in this case its construction and maintenance would be very cheap. I should therefore, as a preliminary measure, at once begin to work a gallery from the floor of the deep workings towards the outside of the mine. This will show how far the salt really extends in that direction and will facilitate future undertakings without incurring expense.

66. As regards carriage, a great part of the salt will have to be carried upwards on its way from the deep workings of both mines to the loading stations of the wire-tramway. This is again contrary to the principle that no salt ought to be lifted to a higher point inside of the mines, and that the tramway ought to limit the depth of the mines. The loading stations will, however, not be permanently constructed, but will be shifted as the workings advance. We could in future place them deeper because the wire tramway allows alterations in level which no other mode of communication would. But as stated before it is not known yet whether we shall after all need to go so deep. If rich salt strata are met with in higher levels, it will be advisable to place the new workings higher. If this is the case we abandon the deep eastern parts of the Soojewal Mine altogether, and the Phurwalla Mine will be permanently closed.

67. The working plan refers only to the continuation of the workings of Soojewal and Buggy. The Phurwalla salt seam is not included in it, because that seam will only be taken up when all the easier resources were exhausted.

68. The future workings of Soojewal Salt Mine.

The level down to which the sloping Soojewal salt seam can be worked after being effectually drained is much deeper than the present limit of the mine. Consequently a wide field of undisturbed rock salt may be opened out for exploration along the whole northern side of the mine. Higher up towards the south-west there is a large part of the Soojewal salt seam yet undisturbed, and the fresh field on this side extends from the Mukhad mine on the south-east to the deep level boundary of the new workings on the north-west. The south-eastern boundary of the Soojewal Mine consists entirely of old exhausted workings.

69. The future workings of Buggy.

The future workings of this Mine are not so much dependent upon drainage as those of Soojewal, because drainage already exists to a considerable depth through Thomson's Tunnel, and because there are, at least up to the present, no limits to the salt layers on the upper boundary of the mine. All workings might, if necessary, be carried up to a higher level. The height of the excavation which we propose to work out of the Buggy seams is fixed at 127 feet. This is the height of the present workings. The width of the workings will also remain the same, because the same salt seams will be worked out. The future Buggy Mine will therefore be an elongation of the present

mine, though probably not quite in a straight line. It is expected to take a slight curve to the south on its north-eastern course. At this conclusion we arrive from the form of the hill, the geological situation in general, and the appearance of the Soojewal salt seam. This latter notoriously bends round with its convex side towards Buggy, and the Buggy salt seam is most probably parallel to it. As regards those parts of the Buggy salt seam which remain on the top of the present and of the proposed workings, we do not know their extent although this may be very considerable; and it would be very desirable to know what resources are left to us there.

70. The rules upon which the future working plan is based *Rules for future working.* can be detailed as follows:—

1. *Drainage.*—The mines are to be kept free from water by *Drainage.* self-acting drainage. The working out of the large seams of good salt is therefore not to be carried down further than the level of the adjoining Khewrah Gorge.

2. *Carriage.*—Not only on account of the water shall we *Carriage.* have to stop the working at a certain depth, but also on account of the carriage of the salt which ought to be level or downward inside of the mines, not upwards.

3. *Galleries and pillars.*—All galleries should be driven *Galleries and pillars.* either parallel to the strata in the strike or across the strata in the fall. Consequently the pillars should be rectangular with sides parallel to the strike and to the fall. For the sake of safety the pillars should have their greatest extension in the direction of the fall, and should also in the upright wide seam extend over the whole width of the seam.

4. *Method of excavation.*—The extraction of the salt should *Method of excavation.* always be carried on so that the higher parts are excavated ahead of the lower, and that the lower parts are worked out in regularly advancing steps. There should also be certain drifts continually driven ahead of the workings for the purpose of attacking the salt field simultaneously from different sides and for the sake of creating ample working space.

1. *First rule.—Drainage.*

71. To secure complete self-acting drainage of the mines a *1st Rule.—Drainage.* drift would have to be made as low as possible, to drain the water out of the deepest parts of the mines into the Khewrah Gorge. The Buggy Mine is now drained solely by Thomson's Tunnel which is higher than the present floor of the mine. There is, however, so very little water in this mine that we can in many places go down considerably below the level of Thomson's Tunnel without being hindered by water at all. The deep workings of Buggy are kept separate from each other, so that whilst one part may be under water, the other remains quite safe. This example we should follow in the future workings, whenever we went below the level of the deepest draining drift. The Buggy Mine can be drained at a level of 120 feet, and the Soojewal Mine, which is now only drained to 180 feet by the Phurwalla water-drift, may be drained fully 60 feet deeper by a horizontal connection-drift. This depth will be sufficient if we have not very much water or if there is so much salt met with in higher levels in still unknown strata that we are not bound to take the salt out from lower levels. When we have a considerable inflow of water, and no new salt seams are disclosed by the connection-drift, nor the seams prove to extend far above the Buggy Mine, we shall have to take as much salt out from below as we can,

and make a lower connection-drift, and a low level entrance-drift into Buggy Mine as proposed before.

2. Second rule.—Carriage.

2nd Rule.—Carriage.

72. So long as we only seek to explore those strata in the Mayo hill which lie higher than the ultimate point of delivery of the salt outside of the hill, we ought to make such arrangements as to require no lifting of the salt inside of the mines. All the salt ought to be transported horizontally or downwards to the tramway. This involves again the condition that the tramway should be in the lowest part of the mine. Now the loading stations of the wire tramway will not be in the lowest part of the mines, but above all the deep workings. For this reason we will not be able to at once entirely comply with the above rule. We can only follow it by chiefly working those parts of the mines now, which lie level with or above the loading stations. The remaining salt may be worked out afterwards when the loading stations are lowered. These latter are not permanent but are to be shifted as the workings advance. If we find much salt at a higher level and the loading stations are not required to be lowered, nor deep water drifts to be made, we may abandon the lower workings altogether. We may bring the whole of the Buggy Mine to a higher level, and on the other hand consider the eastern part of Soojewal Mine to be for the time worked out as soon as an inconvenient depth is reached. In regard to this rule it is of great importance to examine the upper parts of the Buggy salt seams. It should be ascertained by a drift whether these seams extend so far above the present roof that we could work a new mine in the same seams above the old Buggy Mine.

3. Third rule.—Galleries and pillars.

3rd Rule.—Galleries and pillars.

Three kinds of pillars in future workings :—1st.—

2nd.—

3rd.—

73. All galleries should be driven parallel to the strata in the strike and across the strata in the fall. Accordingly the pillars should be of rectangular form and have their sides parallel to the strike and parallel to the fall. We should have the following three kinds of pillars in the future workings :—

1. In the sloping salt seam of Soojewal all pillars should be rectangular and all of the same dimensions. The height from the bottom to the top of the salt seam is equal to 40 feet, the breadth in the direction parallel to the strike equal to 20 feet, and the length in the direction of the fall of the strata equal to 40 feet. The longer axis is placed in the direction of the fall of the strata, to prevent the pillars from cracking along the separate layers of salt.

2. In the big middle seam of Buggy, pillars of twenty feet thickness forming entire walls across the nearly vertical seam and extending from the floor to the roof of the mine. The height of these pillars will be equal to the mine's height, *viz.*, 127 feet, and the length measured horizontally will be just about the same, *viz.*, 127 feet.

3. In the two smaller seams of Buggy, the upper Buggy seam and the lower Buggy seam, we shall have no vertical pillars at all, but roofs instead between the upper and the lower chambers. We cannot help leaving these roofs here, the seams being are too narrow and too upright for any other plan. All the pillars for the future workings are marked out on Map No. III.

marl-seam into the upper and lower seams. From these small drifts, we can work the upper and lower parallel galleries by which we intend to open out those seams. At the same time, we have the opportunity of leaving also in these salt seams at considerable distances apart, say, every 180 feet, cross-pillars corresponding with those of the middle seam. The leaving of a few cross-pillars in the side seams will still more contribute to the safety of the mine. As regards Soojewal, two small drifts have already been made in the Mathew's chamber as described above. These will come into use for commencing such galleries as are in accordance with the adopted working plan. Another drift should, I suggest, at once be made parallel to the strata and starting from the water-drift chamber,—the site of the new loading station. This drift going from north-east to south-west will open out the salt field of Soojewal which still exists above the level of the loading station, and the extensive working of which will therefore be of the greatest importance. Another drift parallel to the strata may later be commenced at a deeper level, starting either from the now proposed connection-drift or from a still lower point.

Pay of the miners by measurement.

78. With the introduction of the wire tramway the separation of each miner's salt will become an impossibility. We shall therefore have to pay them by measuring the excavations which they make into the salt. The galleries themselves will form the register of what the miners have done and afford a guarantee for just payment. One cubic foot of compact rock salt weighs one and a half maunds. The miners may be paid per cubic foot excavated in the salt rock as much as hitherto they have received for one maund of salt. At this rate, I think, we would justly make up for all losses which accrue from the time of excavation, until the salt passes into the merchant's bag. The principal loss is caused by small salt, and also in a minor degree by bad salt. The miner's wages for every hundred maunds delivered at the salt depôts outside of each mine, have hitherto been equal to 4 rupees, minus 1 anna 10 pies dhurwais' fees, and the same amount would have to be paid now for every hundred cubic feet of excavation. It is, however, most desirable to pay a higher price for kuttee than for Pur excavation. The proportion of kuttee to Pur will be 1 to 5, and on that proportion we shall have an average cost near enough to the old rate of 3 rupees, 14 annas, and 2 pies, if we pay for the kuttee, at the rate of 4 rupees, 14 annas, per hundred cubic feet, and for Pur at 3 rupees, 11 annas per ditto, including carriage in both cases.

Pay of the miners by measurement necessitated by the introduction of the wire tramway.

79. The price for the same number of cubic feet, after the establishment of the tramway, must be at least 8 annas less on account of the much shorter distance of the working places from the terminus of the tramway. The miners would have to deposit the salt in heaps along the tramway and receive for every 100 cubic feet of kuttee Price per 100 cubic feet estimated. Average 4 Rs. 5 As.
And per 100 cubic feet of Pur Average 3 Rs. 5 As.
Average cost of 100 cubic feet 3 Rs. 8 As.

80. To compensate for the lower price, the miners would save the amount of 2 annas 2 pie, per 100 maunds, which they hitherto paid to the dhurwais or weighmen. The system of paying the miners by weight forms a guarantee against the waste of salt

Gain to Miners by this new system.

Security against waste impeded by new system of payment by measurement.

but counterbalanced by the advantage of storage in the mines.

Another method of excavation described.

Quantity of Salt which the new workings will yield.

Buggy Mine.

This guarantee is lost when the miners are paid by measurement. It, however, cannot be much to the interest of the miners to make small salt, and besides that, good supervision should secure us against such loss. The supervision of the mines will be very much facilitated by the completion of the proposed connection-drift. The work of their whole body can be checked by the annual balance of the salt. If all surplus above the demanded out-turn were divided amongst the miners, they would mutually endeavour to hinder the waste of salt, and facilitate successful supervision. The system of paying the miners by measurement is accompanied by the great advantage that salt may be stored to any amount in the mines themselves, where it is obviously much safer and not exposed to rain as it is now in the depots.

§1. There is one method of excavation in salt mines, which requires less labour and yields a less percentage of small salt than any other. That is the cutting of the rock salt by water. This method is used in Germany and France, but not in England. It proves most advantageous in mines which have very pure salt, and in this respect no better opportunity could be found than in the Mayo Salt Mines. The method requires a copious, and easily available supply of water, or at least weak brine, plenty of piping, and extensive preparation of "kutter" workings. When a mine is fully prepared by kutter workings, the piping is laid in them, and the remaining salt, below the Pur, is divided by water streams, into as many partitions as one may choose. The salt blocks, which are set free on three sides, require a very small amount of blasting to become separated. Although the time has not yet come for the introduction of this new system, it may be kept in view for a future occasion. There is one thing, however, to be remembered, the continental mines have the advantage of using the resulting saturated brine for conversion into salt, whilst here on the salt range, the brine would be only a nuisance.

§2. The distance to which the Buggy Salt Mine will be driven forward, in completing the future workings, we take to be 900 feet. We expect that the seam will extend north-east, in a curve parallel to that formed by the north-eastern boundary of the Soojewal Mine. Even after an elongation of 900 feet, the workings of Buggy would not nearly reach to the north-east end of Soojewal mine, and there is not much fear, that the Buggy salt seams would be interrupted before the distance of 900 feet is reached. We see from Map II, that the summit of the hill extends just in the same direction as Buggy, and beyond the required distance, before it turns eastwards and before the strata commence to dip to the north-east. Inside of the boundary of 900 feet, no material change of the strike, or fall of the strata, need therefore be expected. The working field of the new proposed Buggy works is now 900 feet long, 125 feet high, and 100 feet wide, which gives a solid area of 180 lakhs of cubic feet. Of this, we subtract one-third for pillars, and have left 120 lakhs. If we calculate one and a quarter maunds of salt for every cubic foot of excavation, we derive a total yield of 150 lakhs of maunds.

§3. The future workings in the Soojewal salt seam will extend in the form of a broad belt, along the north-western margin, and of a square field in the south-west of the present Soojewal Mine. The south-east end of the Soojewal Mine is worked out, and connected with the old Chingwalla Mine, and to the south, the field is partly

Soojewal Mine.

74. Two kinds of galleries will be made. Horizontal galleries parallel to the strike of the strata, and sloping galleries in the direction of the fall of the strata. We call the former parallel galleries and the latter cross galleries.

1. In the Soojewal Mine, we have sloping or cross galleries between the long sides of the oblong pillars 40 feet wide and 40 feet high extending south-east to north-west from the upper to the lower boundary of the explorable salt stratum. The parallel galleries, which are all horizontal and follow the strike of the strata, in straight lines or curves, are to be only 20 feet wide. The pillars being 40 feet long in the slope, and 20 feet wide in the strike, the distance of the parallel galleries from each other must be 40 feet; whilst the distance of the cross galleries from each other is equal to 20 feet. The parallel galleries in Soojewal may be left out partly, or driven after the others as convenient.

2. In the Buggy Mine, in the middle seam, we have pillars in the form of walls extending over the whole width and height of the excavation. Between these pillars are cross galleries 40 feet wide and extending like the pillars over the whole width and height of the mine in this seam. These cross galleries are connected by means of the parallel galleries. These are small drifts going through the pillars only 6 feet wide and 7 feet high. They merely serve to open the large galleries in the beginning and to keep up communication, and serve for transport of salt afterwards. There are four such drifts, one on the floor of each of the four stories into which the mine is divided. The uppermost drift is made first, and worked in advance, through as many cross galleries and pillars as possible. The lower ones are driven afterwards and serve for taking the salt out from the galleries as they are worked down.

3. The two small seams of Buggy will only have parallel galleries, one above the other in each seam with a strong arch of salt between them.

4. *Fourth rule.—Systematical excavation of the salt from the top downwards.*

75. In describing the Soojewal and Buggy Mines, it was mentioned that no fixed rule is observed regarding the method of excavation. A certain narrow part called "kuttee" is worked forward into the salt. By the advance of this kuttee, the compact salt mass is first opened out, and the working of the remaining salt bed is facilitated. The remaining salt is worked away in two ways, either by working upwards from the kuttee, known as "Chuth" work, or by working downwards, technically called "Pur" work. These two methods are indiscriminately adopted, according to no fixed rule. Sometimes it is nearly all "Chuth" work, at others nearly all "Pur." In the first case, the kuttee is on the floor of the started chamber, in the second it is on the top. In other cases the kuttee goes through the midst of the chamber, and equal quantities of the remaining salt are taken out, as "Chuth" and "Pur". To establish a regular system, we must abolish one of the two methods, and I recommend that it be the "Chuth" system, which is interesting, but very inconvenient. The miners excavate the salt from below upwards by means of tripods of such a height that they just allow a man to sit between them and the roof. The man cannot work in such

*Two kinds of Galleries in
Tunnels.*

*Those in the Soojewal mine
described.*

Those in Buggy described.

*4th rule.—Systematical ex-
cavation of the salt.*

Method of working the salt.

Establishing a regular system.

Reasons therefor.

a position either with boring tools, or with the pick-axe, as well as he could if standing on the ground. The work on tripods can only be carried on to a limited height of 30 feet, whilst we have proposed chambers 127 feet high. It would therefore be well, as I said above, to abolish "Chutli" work altogether, and only allow the Pur.

Proposed plan of excavation described.

76. If we do that, we must have the kuttee on the top of each started working, which is the plan on which the salt mines on the Continent and in Cheshire are usually worked. A head working, or "kuttee," is driven in advance just below the roof of the workable salt seam, about 7 feet high, or as high as is required to enable a man to walk upright. Behind the advancing head works, the remaining salt is blasted away in steps. This system should be introduced here. All the galleries, as they are proposed for the extraction of salt, should be driven in two periods. In the first period, we have to drive 7 feet of their height as headwork or kuttee, and in the second period, we work out the whole body of the salt, which remains below, as Pur. We would do this in the parallel galleries, and cross galleries of Soojewal, in the long 60 feet high galleries of the two small Buggy seams, and in the 127 feet high galleries of the middle Buggy seam. In the latter this system of working reaches its highest degree of perfection, on account of the great height of the chambers. The Pur in these chambers will be fully 120 feet high, and it is intended to work it in four steps, or stories, of 30 feet each. The head working, or kuttee, of these large chambers is to be made as follows:—we first drive the No. 4 parallel gallery, or narrow communication drift, forward into the salt seam, and in the space which forms a chamber we work a "kuttee" for a length of 40 feet upwards in a sloping direction towards the right. When the kuttee has reached the height of 127 feet, we work forward horizontally towards the south-east, till we have reached the marl seam, between the middle and lower Buggy seam. When this is done, the kuttee for the whole large chamber is finished and the Pur can be started. Before, however, we reach so far with one chamber, the kuttee of the second and third chamber, &c., will be started. The Pur of all the galleries is likewise worked down successively, so that that in the first gallery will be worked very deep, whilst in the following galleries it will decrease. As before mentioned the Pur work of the chambers is to be performed in steps of 30 feet each, advancing from the upper seam to the lower seam. We have in our plan two kinds of advancing steps, first, those formed by the Pur of each gallery, and second those formed by the galleries themselves, as they follow each other in a less complete state. Both kinds of steps are represented in the two vertical sections on Map No. III. The former, in the vertical section of Buggy, across the strata, and the latter in the same section of Buggy, parallel to the strike, through the middle seam.

Fresh fields may be opened out, and fresh working space created if necessary.

77. As regards the opening of fresh parts of the salt fields and the creating of fresh working space, we have already stated what should be done in this respect in the large middle Buggy seam. We have seen, that the uppermost drift should be worked far ahead in the salt seam, and from it, new chambers commenced one after the other. As regards the side seams any number of starting points can be got by driving small drifts from the advanced workings of the middle seam through the

MINES, KHEWRAH SALT RANGE.

worked out by the Mukhad Mine, as before stated. The new salt field will average 1,200 feet long, 150 feet wide, 40 feet high, equal to a solidity of 80 lakhs of cubic feet. Deducting one-fourth for pillars, leaves 60 lakhs of cubic feet, and these at one and a quarter maunds per cubic foot will turn out 75 lakhs of maunds.

84. Some part of the Phurwalla salt seam is on a higher level than the deep workings of Buggy Mine, and may be explored after the construction of a deep level water drain in Buggy. The quantity of salt easily available from this mine may be about 25 lakhs of maunds.

85. The total quantity of salt available from the new proposed workings is— *Total quantity of Salt obtainable from the new fields.*

Buggy	...	...	150	Lakhs Maunds.
Soojewal	...	...	75	” ”
Phurwalla	...	...	25	” ”

Altogether ... 250 lakhs of maunds of salt.

This quantity, at the present rate of selling, would last 25 years. *sufficient to last for 25 years.* For this period of time, the supply is secured, in already known salt seams. What other supplies we shall get after that time, we can only guess. Considering that, as above stated, the quantity which has already been extracted is equal to 300 lakhs maunds, I should take the whole quantity of salt which must yet be available in the salt hill, above the level of the gorge, to be 1,000 lakhs of maunds. The continuation of the salt hill, on the right side of the Khewrah Gorge, the Leenda and Gitealli, may yet contain much more salt than the old hill, according to geological surmise.

86. But if we only take 1,000 lakhs for granted, the whole available quantity at Khewrah amounts to 2,000 lakhs, and secures the present supply of the mines for 200 years. *Total supply available sufficient to last for 200 years.*

Quantity of salt sold at the Mayo Salt Mines during each official year from 1850 to 1870, by W. Matthews, Esq., Deputy Collector, Inland Customs.

Years.		Maunds of Salt.
1850-51	...	4,64,624
1851-52	...	3,98,115
1852-53	...	5,81,991
1853-54	...	6,46,590
1854-55	...	7,51,236
1855-56	...	7,21,189
1856-57	...	6,55,499
1857-58	...	6,62,592
1858-59	...	7,21,181
1859-60	...	7,57,016
1860-61	...	9,16,106
1861-62	...	7,50,491
1862-63	...	7,35,136
1863-64	...	8,92,123
1864-65	...	8,85,330
1865-66	...	8,92,333
1866-67	...	9,72,417
1867-68	...	9,46,563
1868-69	...	9,63,450
1869-70	...	11,35,969

20 years.

1,54,50,351 maunds.

The production in 20 years previous to 1870 was therefore very little above 154½ lakhs of maunds.

REPORT ON THE MAYO SALT

Cost of the salt after construction of the new tramway and opening out the new workings.

Cost of salt when the new tramway is completed.

R. A. P.

As regards the cost of the salt, Government has paid hitherto for its extraction and carriage to the intermediate depôts outside of the mines the amount of ... 4 0 0

For the carriage thence down to the weighing-house, the merchants pay ... 0 12 0

The merchants pay also for the carriage of empty bags to the depôts at the mines ... 0 1.15 0

The total cost of 100 mounds of salt at the weighing-house is therefore ... 4 18 13

After the establishment of the new tramway we shall receive the salt at the loading station per 100 mounds, at ... 3 8 0

There is thus henceforth a saving of ... 1 5 13 in the production of every 100 mounds of salt.

V.—Chemical analysis of the salt.

Analyses of Salt.

Statistics of analyses.

ESTIMATE OR ANALYSIS.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.
	Trace	0.12	Trace	Trace	Trace	0.01	1.12	1.12	Trace	1.00
Earthy matter	...	0.21	0.21	0.77	0.10	0.97	0.09	0.02	0.73	2.50
Sulphate of Lime	2.61	...	...	...	...	...	0.73	2.50
Sulphate of Magnesia	2.61	...	...	...	1.01	1.00	...	2.50
Chloride of Calcium	...	0.92	—	0.03	0.12	1.11	—	—	0.50	—
Chloride of Magnesia	...	0.32	1.78	0.71	0.71	1.71	2.47	1.29	0.93	1.00
Chloride of Sodium	...	0.93	0.91	0.60	0.74	0.70	0.73	0.73	0.67	0.60
Water and loss	...	—	—	3.42	5.31	5.75	8.22	8.21	1.34	4.07
TOTAL	...	10.97	10.94	10.00	10.70	10.00	12.10	12.00	10.00	10.00

From Mr. M. Hickie's Pamphlet on Customs:—

No. I.—Lahore Salt.

No. II.—Lahore Salt.

Analyses made by Cornelius Hickie, Esq., Chemical Analyst, Agra:—

No. III.—Purest white crystallized salt from the Mayo Salt Mines.

No. IV.—White salt as it is sold from depôt at Buggy Mine.

No. V.—Red salt as it is sold from depôt at Soojewal Mine.

No. VI.—Mixed white and red sold as it is sold from Buggy Mine Depôt.

No. VII.—Bad salt which is thrown away as waste from Soojewal Depôt.

No. VIII.—Bad salt which is thrown away as waste from Buggy Depôt.

Average of composition of salt from Mayo Salt Mines.

No. IX.—Average good salt from the Mayo Salt Mines, calculated as average of the analyses III, IV, V and VI.

No. X.—Average bad salt from the Mayo Salt Mines, calculated as average of the analyses VII and VIII.

87. We take No. IX as the fair average composition of the market produce of the Mayo Salt Mines. Accordingly this con-

MINES, KHEWRAH SALT RANGE.

tains only traces of earthy matter, not more gypsum than refined Digest of analysis manufactured salt generally contains, and a moderate quantity of the chlorides of calcium and magnesium.

88. Even the waste salt of the Mayo Salt Mines, which is represented by analysis No. X, is still a comparatively pure salt, containing only one per cent. of earthy matter and 5 per cent. of other salts including the sulphate of lime. To prevent mistakes, I must mention that the waste salt in question is not that fine salt which is left in large quantities in the mines, because the traders cannot easily transport it and prefer salt in lumps. The waste salt analysed is bad salt mixed with *gangue* and separated in larger pieces from the good salt at the depôts. It is very remarkable that this sort of waste salt contains sulphate of magnesium, and the good salt, chloride of calcium instead. The very same difference exists in the two samples of Lahore salt Nos. I and II. The first of these samples contains sulphate of lime, chloride of magnesium and chloride of calcium, whilst the second contains sulphate of lime, chloride of magnesium and sulphate of magnesia.

SIMLA,
The 1st November 1870. }

H. WARTH,
Chemical Analyst,
Inland Customs Dept.

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Appendix B.

Bhurpoor Salt.

The Bhurpoor salt being the only description manufactured in Rajpootana that could be expected to compete successfully with Sambhur, after the completion of the Agra and Jeypoor Railway, I have thought it necessary to enter into some details, as to its out-turn for the past five years, average prices at the works, &c.

2. Appended are several tabular statements which I have compiled from information kindly furnished by Major T. Cadell, v. c., Political Agent for the Eastern States of Rajpootana, and which give, I believe, all the particulars in regard to Bhurpoor salt, necessary for our purposes.

3. The steady yearly increase in the price of every description of Bhurpoor salt, is the most noticeable feature in these tables. It is on the *price* at which this salt can be sold that its chance of retaining any permanent hold on our markets, after the Agra and Jeypoor Railway opens, depends, and if the future may be in any way gauged by the past, this chance is small indeed.

4. To enable Bhurpoor salt to keep its position, not only must the heretofore steady rise in prices be arrested, but a material reduction in those of the past year must be effected. Sambhur salt leaves the works at an uniform rate of 10 annas a maund. When the Sambhur, Bhurpoor and Agra line is complete, the cost of carriage of Sambhur salt to Agra will only exceed that of Bhurpoor to the same mart by 3 annas per maund.

5. The average price at the works, of Bhurpoor salt of all descriptions has, during the past year, been 13 annas per British maund. At this price, therefore, both Sambhur and Bhurpoor salt would be put at the same price into the Agra market. But neither *Kuteela* nor *Punja* which form the great bulk of the Bhurpoor exports, can compete with Sambhur unless they can be sold at least 4 annas the maund cheaper than this latter salt. It follows that if Bhurpoor is to hold its own, its price must fall from Rs. 3-8-6 per pullah at which it has sold throughout Sumbut 1926 (21st September 1869 to 9th September 1870) to Rs. 2-6-9 for the same quantity, a price to which it has never fallen since September 1867.

6. Every thing depends upon the possibility of this reduction. Under the existing system, both of manufacture and management, it seems doubtful whether this is possible, but if the Durbar were to address themselves energetically and *in time* to the task, were to remove the numerous obstructions of which the manufacturers complain, and substitute for their present *share* in sale proceeds, a light duty, it is probable that this *to them* most important branch of national industry might be preserved.

7. There is however too much reason to fear that this will not be done. The construction of the Railway, which will open in sections beginning from Agra, and which will at first give Bhurtpoor salt the advantage of Railway carriage to Agra, without conferring any commensurate advantage on Sambhur, will temporarily greatly stimulate the trade in the former and encourage the belief that the Bhurtpoor trade is sound and healthy, and when a year or two later the rail is opened the whole way to the lake, and Sambhur suddenly takes possession of the market, it will be too late to initiate the fundamental reforms necessary to preserve the Bhurtpoor trade.

A. O. HUME,
Commissioner of Inland Customs.

BHURPOOR SALT.

Statement showing the produce and sale of salt of all descriptions at the Bhurpoor works during the past five years.

YEAR.	Estimated amount of salt in stock at commencement of year.	Amount of salt manufactured during the year.	Amount of salt sold during the year.	Average price per ton which averaged with British.	Average price per ton.
† Sumbut 1922	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
6th September 1865 ... 24th September 1866 ...	1,562,547	1,405,420	1,473,359	2 2 3	0 7 11
Sumbut 1923	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
25th September 1866 ... 13th September 1867 ...	1,539,591	1,142,922	1,447,450	2 2 2	0 7 11
Sumbut 1924	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
14th September 1867 ... 2nd September 1868 ...	1,156,745	1,230,184	1,219,556	2 10 9	0 9 9
Sumbut 1925	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
3rd September 1868 ... 20th September 1869 ...	991,835	1,413,904	1,544,292	2 11 6	0 10 1
Sumbut 1926	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
21st September 1869 ... 9th September 1870 ...	1,047,303	1,240,404	1,429,321	3 6 6	0 13 2

* Vide Separate Memo. on Bhurpoor weights.

† The Bhurpoor Sumbut commences on Kwar Buddee 1st.

Statement showing the produce and sale of Punya salt at the Bhurpoor works during the past five years.

YEAR.	Estimated amount of salt in stock at commencement of year.	Amount of salt manufactured during the year.	Amount of salt sold during the year.	Average price per ton which averaged with British.	Average price per ton.
Sumbut 1922	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
6th September 1865 ... 24th September 1866 ...	587,935	683,809	726,706	1 10 6	0 5 5
Sumbut 1923	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
25th September 1866 ... 13th September 1867 ...	555,626	462,721	666,127	1 13 9	0 6 4
Sumbut 1924	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
14th September 1867 ... 2nd September 1868 ...	513,276	630,039	567,923	2 6 9	0 8 3
Sumbut 1925	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
3rd September 1868 ... 20th September 1869 ...	416,708	754,512	893,454	2 6 3	0 8 10
Sumbut 1926	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
21st September 1869 ... 9th September 1870 ...	341,316	637,937	624,307	(Details not received.)	

BHURPOOR SALT.

Statement showing the produce and sale of Kuteela salt at the Bhurpoor works during the past five years.

YEAR.	Estimated amount of salt in stock at commencement of year.	Amount of salt manufactured during the year.	Amount of salt sold during the year.	Average price per puli (which of this salt contains 1473 mts. British mts.)	Average price per British mts.
	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
Sumbut 1922	...	969,170	780,021	728,003	2 9 3
6th September 1963	...	24th September 1966	...		0 9 10
Sumbut 1923	...	933,536	663,616	763,761	2 5 9
25th September 1966	...	13th September 1967	...		0 9 0
Sumbut 1924	...	790,559	559,030	730,529	2 14 0
14th September 1967	...	2nd September 1968	...		0 10 11
Sumbut 1925	...	629,727	650,372	137,632	2 15 0
3rd September 1968	...	20th September 1969	...		0 11 1
Sumbut 1926	...	697,621	655,337	729,697	(Details not received.)
21st September 1969	...	9th September 1970	...		

Statement showing the produce and sale of Mutya salt at the Bhurpoor works during the past five years.

YEAR.	Estimated amount of salt in stock at commencement of year.	Amount of salt manufactured during the year.	Amount of salt sold during the year.	Average price per puli (which of this salt contains 1473 mts. British mts.)	Ave.
	Maunds.	Maunds.	Maunds.	Rs. A. P.	Rs. A. P.
Sumbut 1922	...	26,619	25,191	20,559	3 8 3
6th September 1963	...	21th September 1966	...		0 14 0
Sumbut 1923	...	37,129	16,553	17,502	3 13 6
25th September 1966	...	13th September 1967	...		0 15 4
Sumbut 1924	...	22,912	21,106	21,471	3 14 0
11th September 1967	...	2nd September 1968	...		0 15 8
Sumbut 1925	...	13,453	9,619	12,146	4 2 0
3rd September 1968	...	20th September 1969	...		3 14 7
Sumbut 1926	...	8,553	17,119	11 12	(Details not received.)
21st September 1969	...	9th September 1970	...		

BLURTPOOR SALT.

Memorandum of the Bhuripoor Salt weights.

PEKING SALT.

22 Takkas	=	1 seer.
14 Seers	=	1 maund.
5 Maunds	=	
or		
4 British maunds & 20} seers	=	1 pallah.

Кетчуп салат

22 Takkan	mm	1 avar.
45 Senn	mm	1 maund.
4 Maund 33		
avar or		
4 British	mm	1 pallah.
maund &		
7½ avar		

MERRA, SALT,

22 Takkar	= 1 meter.
42 Seem	= 1丈.
4 Maunds 20	= 1 jallab.
seers	
or	
4 British maunds	= 1 jallab.

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